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ABSTRACT

Described are mineral locations in the state of North Carolina. The localities are presented in annotated form, by counties, with a brief description of the minerals occurring at each deposit. No attempt is made to explain the mode of occurrence or the geologic origin of the deposits. The descriptions are accompanied by county highway maps for each county covered with localities numbered on the maps. Aids for finding information in this guide include the table of contents which lists the minerals for each county with the page reference and a mineral index in the appendix. (Author/PR)

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NORTH CAROLINA
DEPARTMENT OF CONSERVATION AND DEVELOPMENT

ROY G. SOWERS, JR., DIRECTOR

DIVISION OF MINERAL RESOURCES
STEPHEN G. CONRAD, STATE GEOLOGIST

INFORMATION CIRCULAR 16

MINERAL LOCALITIES OF NORTH CAROLINA

BY

JAMES F. CONLEY
RALEIGH
1958

1823

REVISED 1971
O. F. PATTERSON, III
G. ROBERT GANIS

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MINERAL LOCALITIES OF NORTH CAROLINA

INTRODUCTION

Purpose and Scope

North Carolina contains rocks ranging in age from Precambrian to Pleistocene and Recent. Within this wide age range of rocks is located one of the largest mineral assemblages identified to-date in any state in the United States. These minerals range from clays and sands to prized precious and semi-precious gemstones to beautiful cabinet specimens and valuable ores.

The equipment needed for collecting minerals may be easily obtained at little expense. As you collect at various localities and become a more experienced collector, you will add more tools as they are needed. The basic tools are the hammer and cold chisel. A prospector's pick or hammer, which has a hammer head on one end and pick head on the other, is the best type of hammer. Larger hammers and chisels may be needed for cracking or prying large rocks apart. A magnifying glass is a necessity for the identification of small crystals and examination of sands. For field work a cheap glass is usually as useful as the high priced corrected magnifying glass. An 8 X to 10 X is sufficient magnification. A collecting sack, pack or just a heavy cloth or canvas bag stuffed with some old newspapers is needed to wrap the specimens in and in which to carry the specimens. Specimens should always be properly wrapped and labeled.

With no more equipment than mentioned above, many persons in the state have amassed collections which some museums would be proud to display. Other people who prefer cut stones have bought and made lapidary equipment at little initial cost and, using local rocks, minerals and gem material, have polished them into handsome costume jewelry. Others who desire the ultimate in the lapidary art have mastered the difficult task of faceting stones, and many specimens of high quality and value have been prepared.

Because of the ever-rising interest in mineral collecting and gem cutting which has developed in the state, this publication was first prepared and published in 1958 as a guide to the mineral localities of North Carolina and was designed to aid collectors and other interested persons in finding the minerals of the state. Since 1958, many new localities have been recognized, and some of the old ones depleted. Some of the localities given in the 1958 edition have been omitted for many reasons, and many new and excellent localities have been added. Some of the localities are famous old mines which have been closed for years, some are prospects, some are present-day active mines, while others are collecting localities only. Many of the gold, feldspar, mica and other deposits have been purposely omitted because they are covered in other publications issued by the Division of Mineral Resources. Many, however, have been included to give each county covered at least a few localities and most of the localities mentioned in this report have many other minerals occurring with them.

The localities are presented in annotated form, by counties, with a brief description of the minerals which occur at each deposit. No attempt is made to explain the mode of occurrence or the geologic origin of the deposits, because this would be beyond the scope of this report.

The descriptions are accompanied by county highway maps for each county covered with the localities numbered on the maps. Most localities were field checked resulting in some additional minerals and new localities. A few localities were given the authors by collectors and were not field checked.

Mineral Collecting in North Carolina

Probably the first miners and mineral collectors of the state were Indians who mined mica in western North Carolina and traded it with the surrounding tribes. Such old mine workings were recognized by the early settlers, who mistakenly thought the Indians had been mining silver. Two mines which contained ancient workings are the Baird mine in Macon County and the Sink Hole mine in Mitchell County (Smith, 1876, pp. 441-443, and Sterrett, 1923, p. 250). Galena, pyrite and quartz crystals are sometimes found in Indian burials indicating that they prized and collected certain minerals.

The early miners and promoters of the mining industry were also interested in mineral collecting. Such men as General Thomas L. Clingman J. A. D.Stephenson, W.E. Hidden, Dr. G.F. Kunz and others had extensive collections.

From this early group, mineral collecting has grown to its present proportions. Mr. B.H. Colburn of Asheville organized the first mineral club in the state in the middle 1920's. At the present time, the state has several active mineral clubs and private collectors probably number well over a thousand. The variety of minerals to be found in North Carolina has attracted thousands of collectors from other states and even foreign countries and has greatly aided the tourist industry in the western part of the state. Local gem cutters have a ready market for jewelry which they make and sell to those visiting North Carolina. Since the first edition of this report in 1958, many mines have been reopened to the mineral collectors and rockhounds at nominal fees. The experienced collector and even the tourist who is trying his hand at it for the first time may find rubies, sapphires, emeralds, gold nuggets and many nice specimens at these various establishments. In 1964, alone, over $15,000.00 worth of gemstones were produced in North Carolina and many new and old localities have been opened and reopened to the public since 1964.

Where to Collect

The best place to look for mineral specimens is in working mines and old mine dumps. Railroad and highway cuts often contain some excellent mineral specimens, as do stream banks, gullies and stream beds. Freshly-plowed fields have disclosed remarkable specimens which are resistant to weathering.

The localities described in this report are places where minerals have been found, and where at least some of the mentioned minerals may still be found. Some of them have been almost obliterated by time, vegetation and man. It was found during the period of fieldwork for this revised edition that buildings, highways, and even towns and lakes now cover what were once good collecting sites. Specimens at some localities may be difficult to find, while other localities are well preserved and specimens easily obtained.

Almost any place a collector goes will be on private property and he should have the permission of the property owner or the mine operator to enter the locality and remove specimens. One should be careful with fire and make a special effort to leave the area clean. Many localities have been closed to the public because someone failed to secure permission from the owner, started a fire or left the area littered. Landowners become irate when some rockhound leaves the gate open and his cows get out. So, be sure you have permission, leave the premises at least as clean as they were when you arrived and shut all gates.

The Mineral Localities of North Carolina by Counties

Alamance County

Pyrophyllite : *Pyrophyllite* occurs in Alamance County at the Snow Camp mine (Holman's Mill) located 2.7 miles southeast of the village of Snow Camp (see Map 1, locality 1). This deposit can be reached by following SR 1004 south of Snow Camp for 1.6 miles and turning east on to SR 2352 for approximately 1.9 miles. The mine lies north of the road on the side of a wooded hill, 0.2 mile above the road.

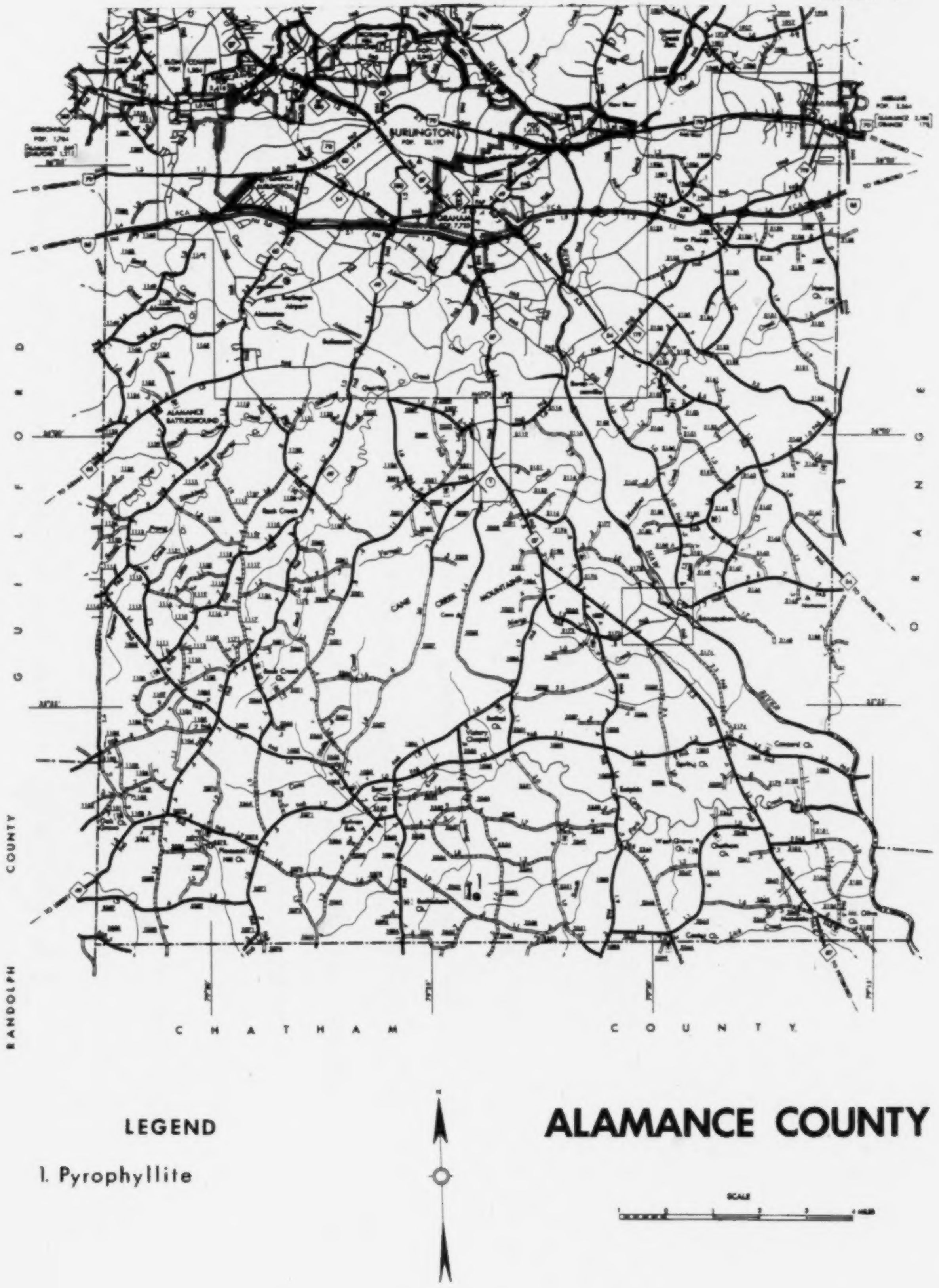
In addition to massive *pyrophyllite*, the following minerals also occur: *diaspore, sericite, pyrite, chert and ilmenite*. *Topaz* has also been reported from this mine but none was found by the authors. It was noted that some years ago several clear *quartz* crystals enclosing *pyrite* crystals were found in a *quartz* vein, which crosses the southern part of the deposit.

Gold : *Gold* has been mined in several localities in Alamance County. The reader is referred to Bulletin #38, "Gold Deposits in North Carolina," which is out-of-print, but may be referred to in many college and university libraries.

Alexander County

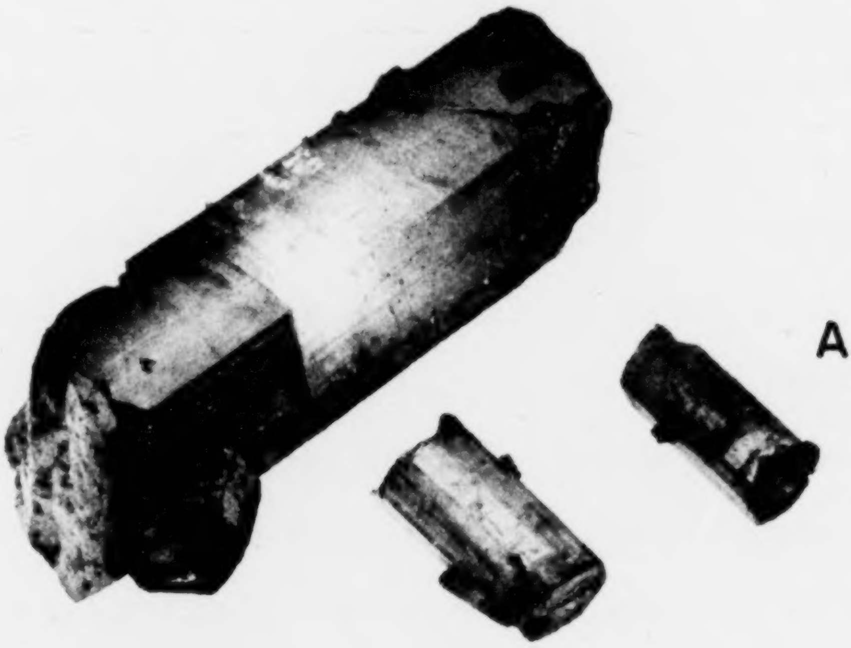
Alexander County is a very famous mineral collecting locality in

MAP 1

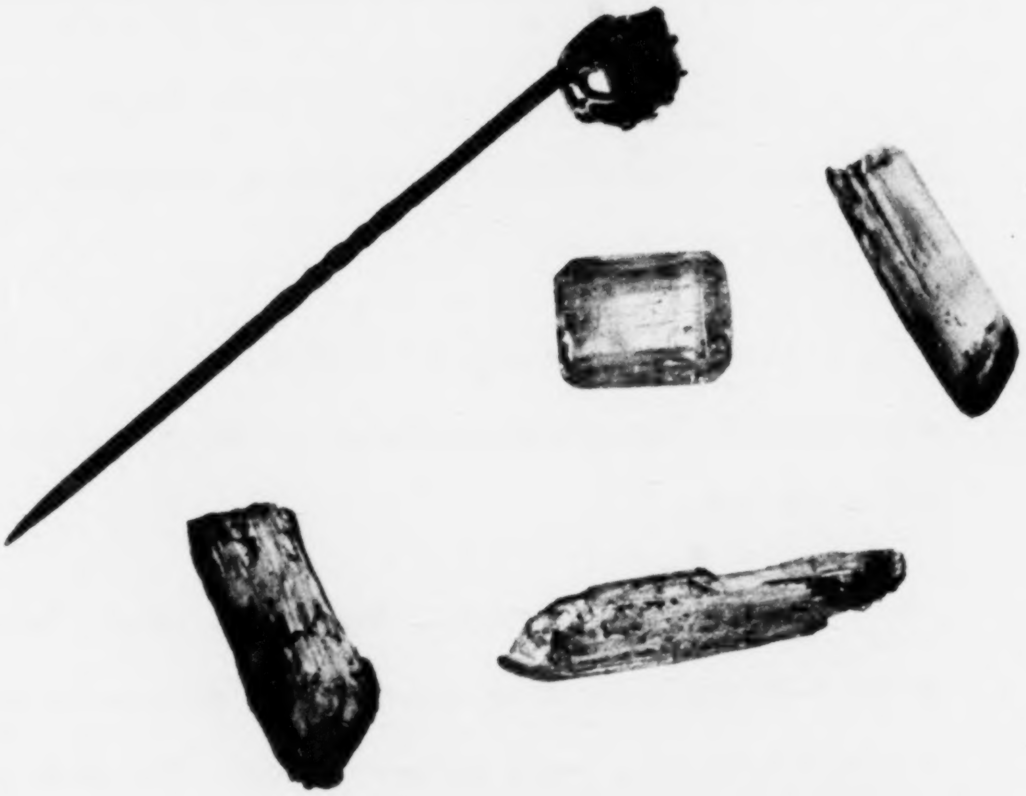

BURLINGTON
GUILFORD
RANDOLPH COUNTY
CHATHAM COUNTY
ORANGE
ALAMANCE BATTLEGROUND
LEGEND
1. Pyrophyllite
SCALE

ALAMANCE COUNTY

PLATE NO. 1


A. *EMERALD CRYSTALS, ALEXANDER COUNTY*

B. *EMERALD IN MATRIX, MITCHELL COUNTY*


C. *HIDDENITE CRYSTALS AND CUT STONES, ALEXANDER COUNTY*

COURTESY STATE MUSEUM, RALEIGH

PHOTOGRAPH BY S. W. Buchanan

North Carolina. *Hiddenite*, a very rare and highly sought after green variety of *spodumene* was first discovered and mined at Hiddenite, North Carolina. *Emeralds* have been found in at least three localities, some have been quite large and of fine quality. Reticulated *rutile* and gem-quality rutilated *quartz* are also well known from many localities. Lastly, very large and well-formed *smoky quartz* crystals are known from locations in Alexander County. At the present time there are two mines open to the public for collecting for a fee. One is the famous Hiddenite mine which is owned by Mrs. Ruby Turner Adams. There are several plowed fields near the old mine workings which are turned over several times a year. The other is the Ellis mine, only recently reopened.

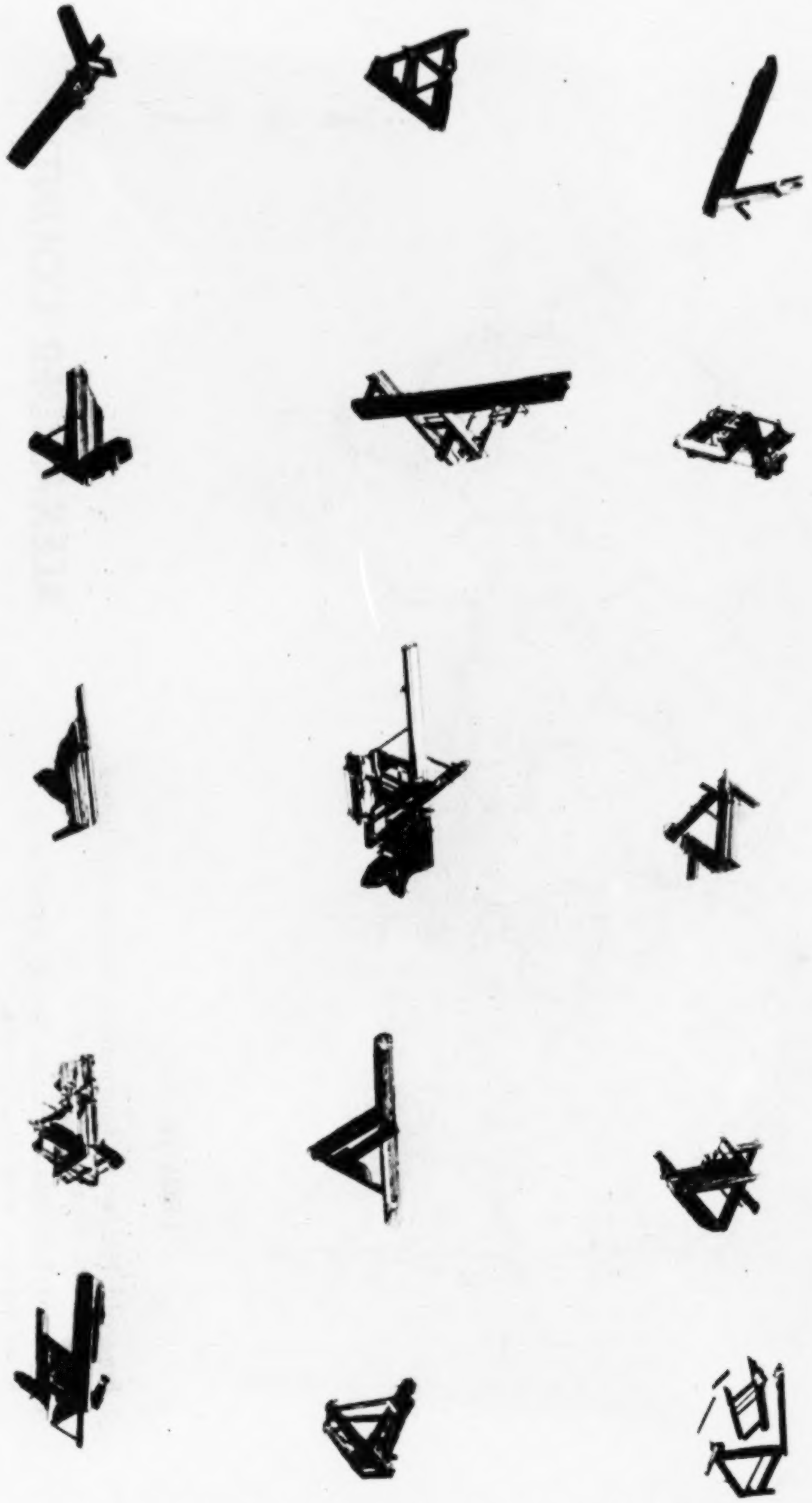
For convenience, the mineral localities are listed here by number with a brief description of the minerals found and the location. The exact locations are pinpointed on the Alexander County locality map (see Map 2).

Locality 1: *Emerald, Hiddenite, Tourmaline, Rutile, Rutilated Quartz and Quartz Crystals;* located in Hiddenite, North Carolina on the south side of N.C. 90.

Locality 2: *Emerald, Rutilated quartz, Smoky quartz, Rose quartz* and *Hiddenite* (uncommon); located 1.2 miles northeast of Hiddenite at the end of SR 1492.

Locality 3: *Emerald, Aquamarine beryl, Rose quartz* and *Rutile;* located at the Ellis mine which is 0.5 mile north of the Hiddenite School in the bottom of a small stream valley. The mine is located on the eastern side of the road.

PLATE NO. 2



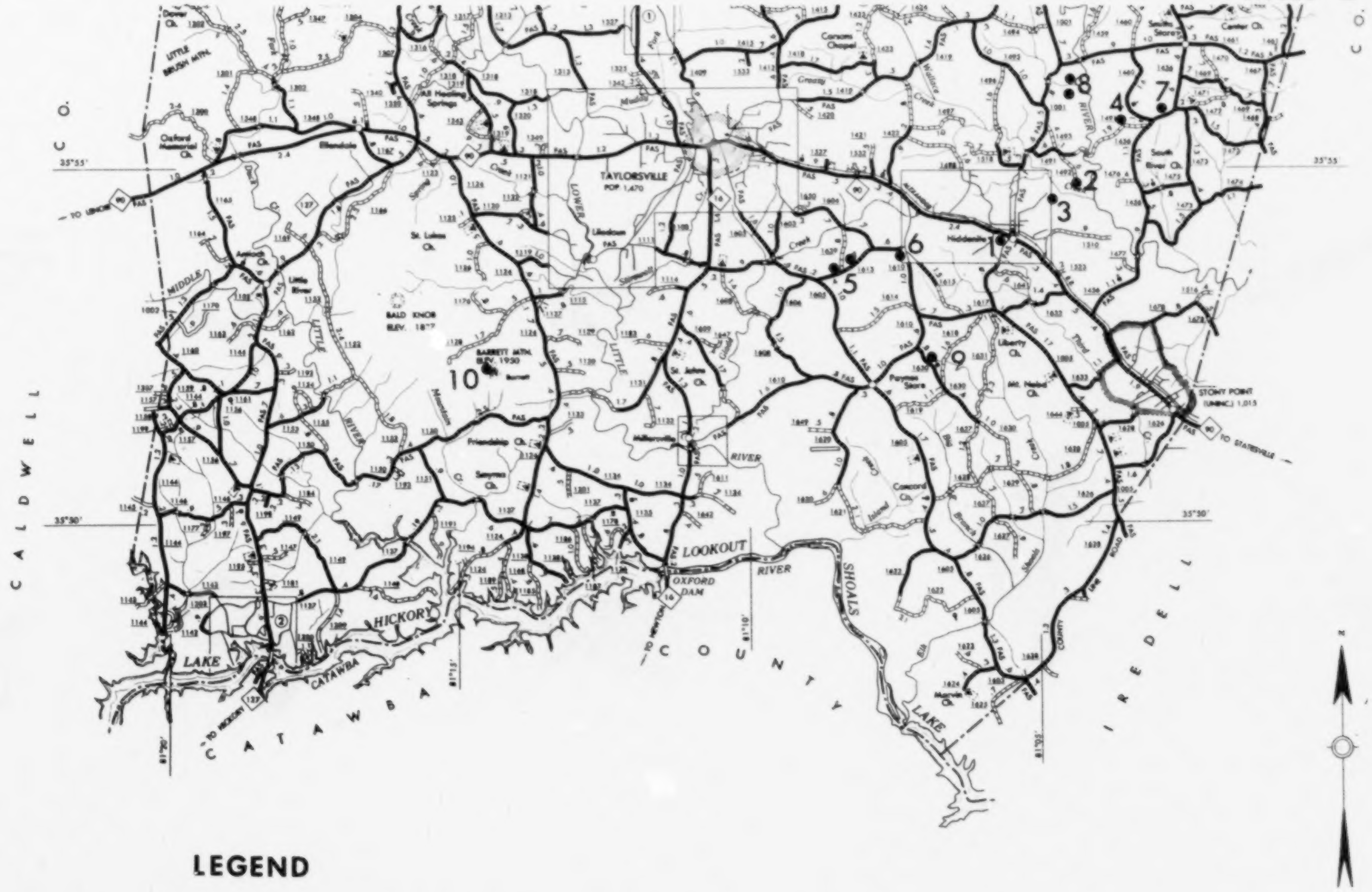
RETICULATED RUTILE CRYSTALS

Ellis Mine, Alexander County

COURTESY STATE MUSEUM, RALEIGH

PHOTOGRAPH BY S.W. Buchanan

MAP 2


C O.
C A L D W E L L
C O.
TAYLORSVILLE
POP 1,470
Hiddenite
STONY POINT
TO STATESVILLE
TO LENOIR
TO HICKORY
TO NEWTON
LOWER
LITTLE
RIVER
MIDDLE
LOOKOUT
SHOALS
LAKE
OXFORD DAM
LAKE HICKORY
CATAWBA
BALD KNOB
BARRETT MTN.
C A T A W B A
C O U N T Y
I R E D E L L
COUNTY
35°55'
35°50'
81°20'
81°15'
81°10'
81°05'
1
2
3
4
5
6
7
8
9
10

ALEXANDER COUNTY

SCALE
4 MILES

LEGEND

1. Emerald, Hiddenite, Tourmaline, Rutile, Rutilated quartz and Quartz crystals
2. Emerald, Rutilated quartz, Smoky quartz, Rose quartz and Hiddenite
3. Emerald, Aquamarine beryl, Rose quartz and Rutile
4. Rutilated quartz
5. Rutilated quartz
6. Rutilated quartz
7. Rutile, Rutilated quartz and Rose quartz
8. Rutilated quartz and Smoky quartz
9. Goethite and Limonite
10. Graphite

Locality 4: *Rutilated quartz;* located on the McCoury farm (formerly the Tom Sharpe farm) approximately 2 miles northeast of Hiddenite on the road to Smith's Store (SR 1491).

Locality 5: *Rutilated quartz;* occurs as float two miles southeast of Taylorsville just north of SR 1613.

Locality 6: *Rutilated quartz;* occurs 0.6 mile northeast of locality 5 on the Payne property southwest of the intersection of SR 1610 and SR 1613.

Locality 7: *Rutile, Rutilated quartz* and *Rose quartz;* occurs on the property of Mr. George Lackey four miles north of Stony Point on SR 1456. These minerals occur in a field just north of the dwellings on this farm.

Locality 8: *Rutilated quartz* and *Smoky quartz;* is reported to occur 3.2 miles north of Hiddenite, between the South Yadkin River and one of the tributaries, as well as 0.4 mile south of this area between the South Yadkin River and the road to Hiddenite.

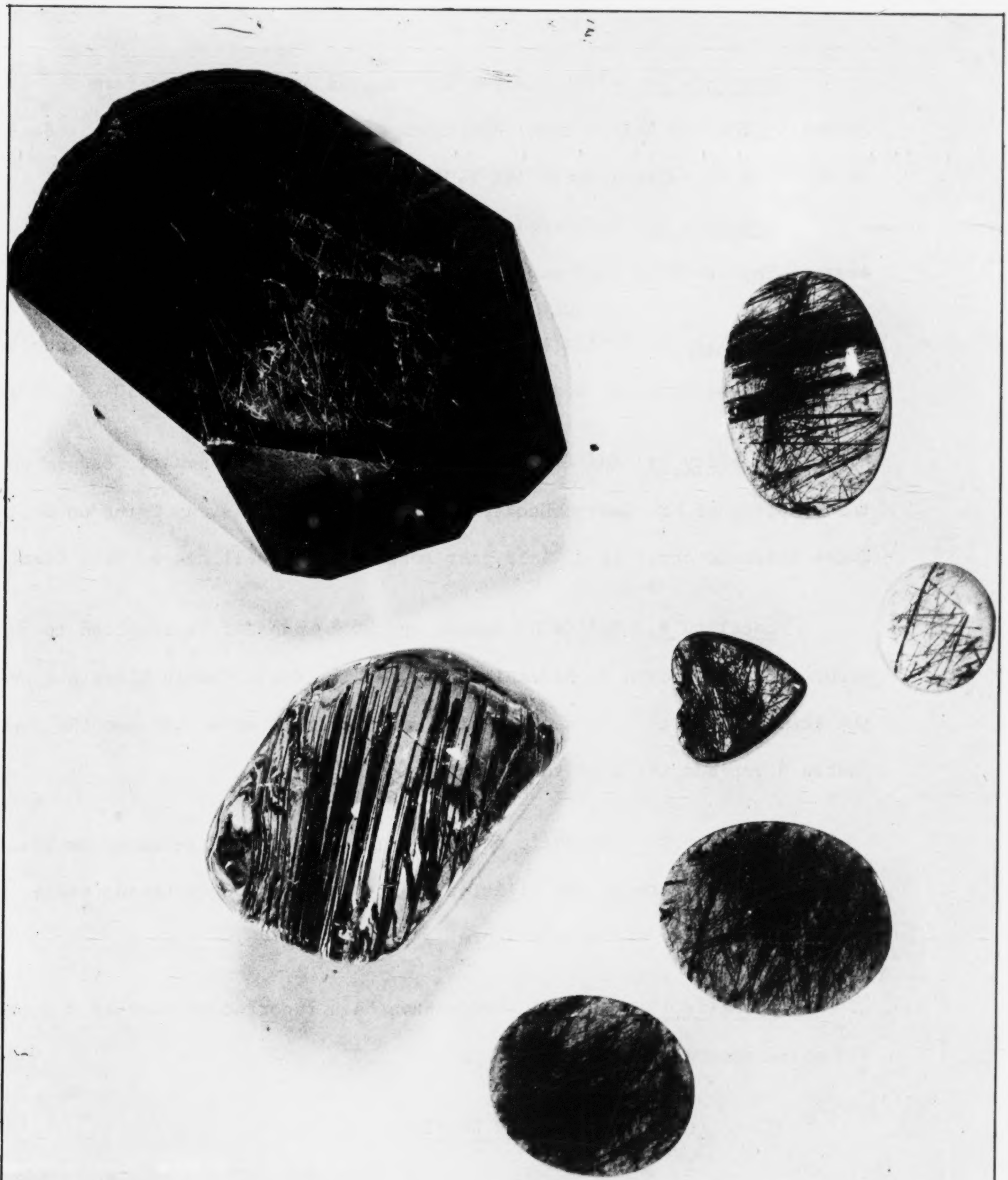
Locality 9: *Goethite* and *Limonite;* is reported to occur as float on the Isenhour farm on the hillside behind Mr. Isenhour's tenant house, 0.7 mile northeast of Payne's Store.

Locality 10: *Graphite* veins have been reported on Barrett Mountain, 5.3 miles southwest of Taylorsville.

Alleghany County

Manganese: A manganese deposit occurs in Alleghany County in the region south of Bald Knob, three miles north of Sparta (see Map 3, locality 1).

PLATE NO. 3

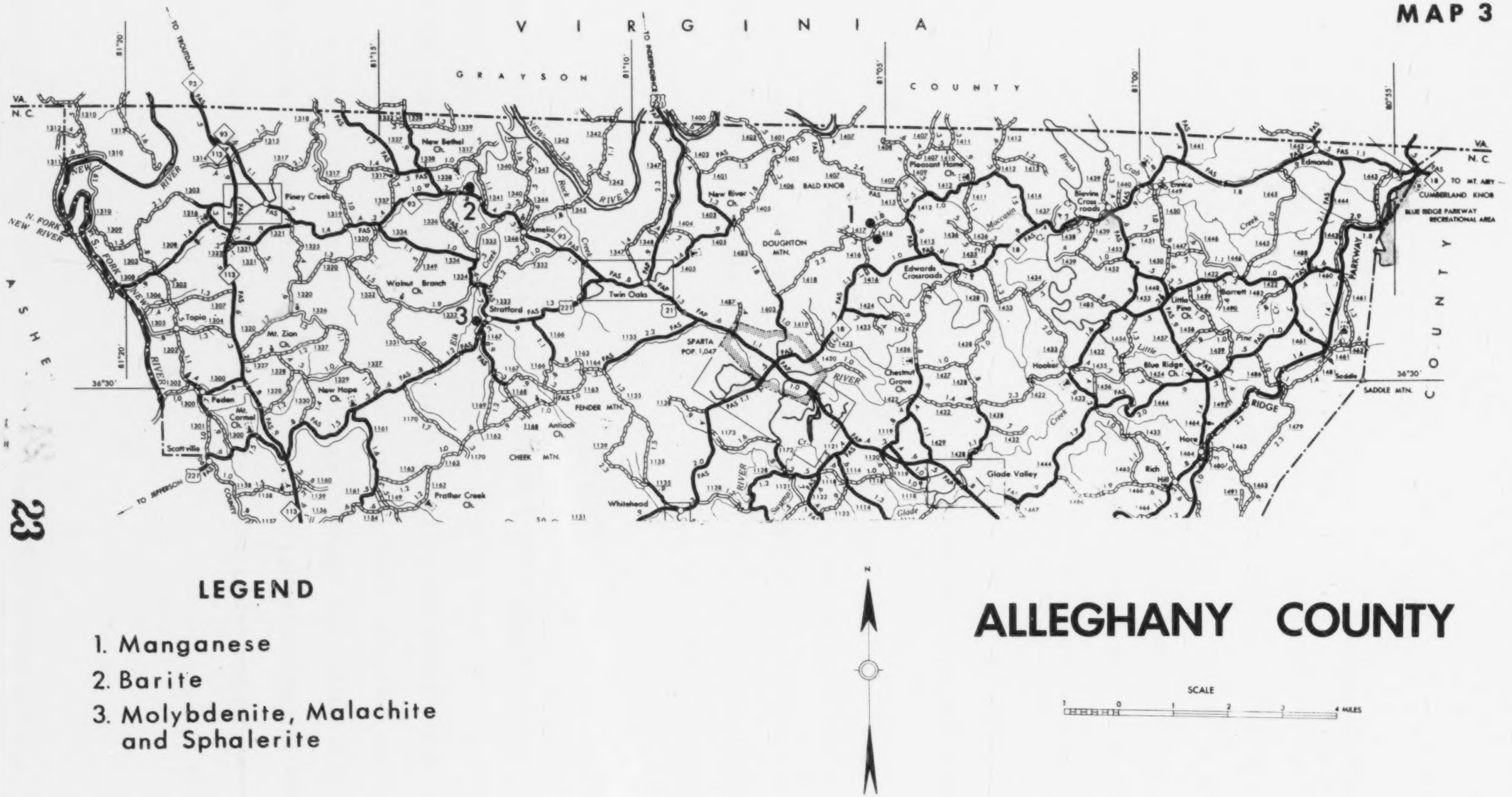


RUTILATED QUARTZ
Alexander County

COURTESY STATE MUSEUM, RALEIGH

PHOTOGRAPH BY S.W. Buchanan

MAP 3



VIRGINIA
GRAYSON COUNTY
ASHE
COUNTY
VA.
N.C.
TO TROUTDALE
TO INDEPENDENCE
TO MT. AIRY — CUMBERLAND KNOB
BLUE RIDGE PARKWAY RECREATIONAL AREA
TO JEFFERSON
81°20'
81°15'
81°10'
81°05'
81°00'
80°55'
36°30'
NEW RIVER
N. FORK NEW RIVER
S. FORK NEW RIVER
Piney Creek
New Bethel Ch.
Amelia
Walnut Branch Ch.
Stratford
Twin Oaks
Topia
Mt. Zion Ch.
New Hope Ch.
Peden
Mt. Carmel Ch.
Scottville
Prather Creek Ch.
CHEEK MTN.
Antioch Ch.
FENDER MTN.
Whitehead
SPARTA POP. 1,047
New River Ch.
DOUGHTON MTN.
BALD KNOB
Pleasant Home Ch.
Edwards Crossroads
Chestnut Grove Ch.
Glade Valley
Blevins Cross roads
Ennice
Edmonds
Hooker
Blue Ridge
Little Pine Ch.
Barrett
Hare
Rich Hill
Saddle
SADDLE MTN.
PARKWAY
RIDGE
Brush Cr.
Crab Cr.
Moccasin
Elk Cr.
Rock Creek
Little Pine
Glade
Sugar
1
2
3
N
SCALE
1 0 1 2 3 4 MILES

LEGEND

1. Manganese
2. Barite
3. Molybdenite, Malachite and Sphalerite

ALLEGHANY COUNTY

Several mine shafts have been sunk on a small hill, known as Crouse Knob, south of Bald Knob. The minerals found in this deposit include *alleghanyite*. *spessartite*, *tephroite and galazite*. The area may be reached by taking N.C. 18 northeast of Sparta for 2.9 miles and turning north onto SR 1416 which bifurcates at 0.6 mile. The mine lies on the right fork of this road SR 1416, 0.3 mile from the road bifurcation. The mine dumps can be seen on both sides of the road at this point.

Barite: *Barite* veins lie north of N.C. 93, 1.3 miles northwest of Amelia (see Map 3, locality 2).

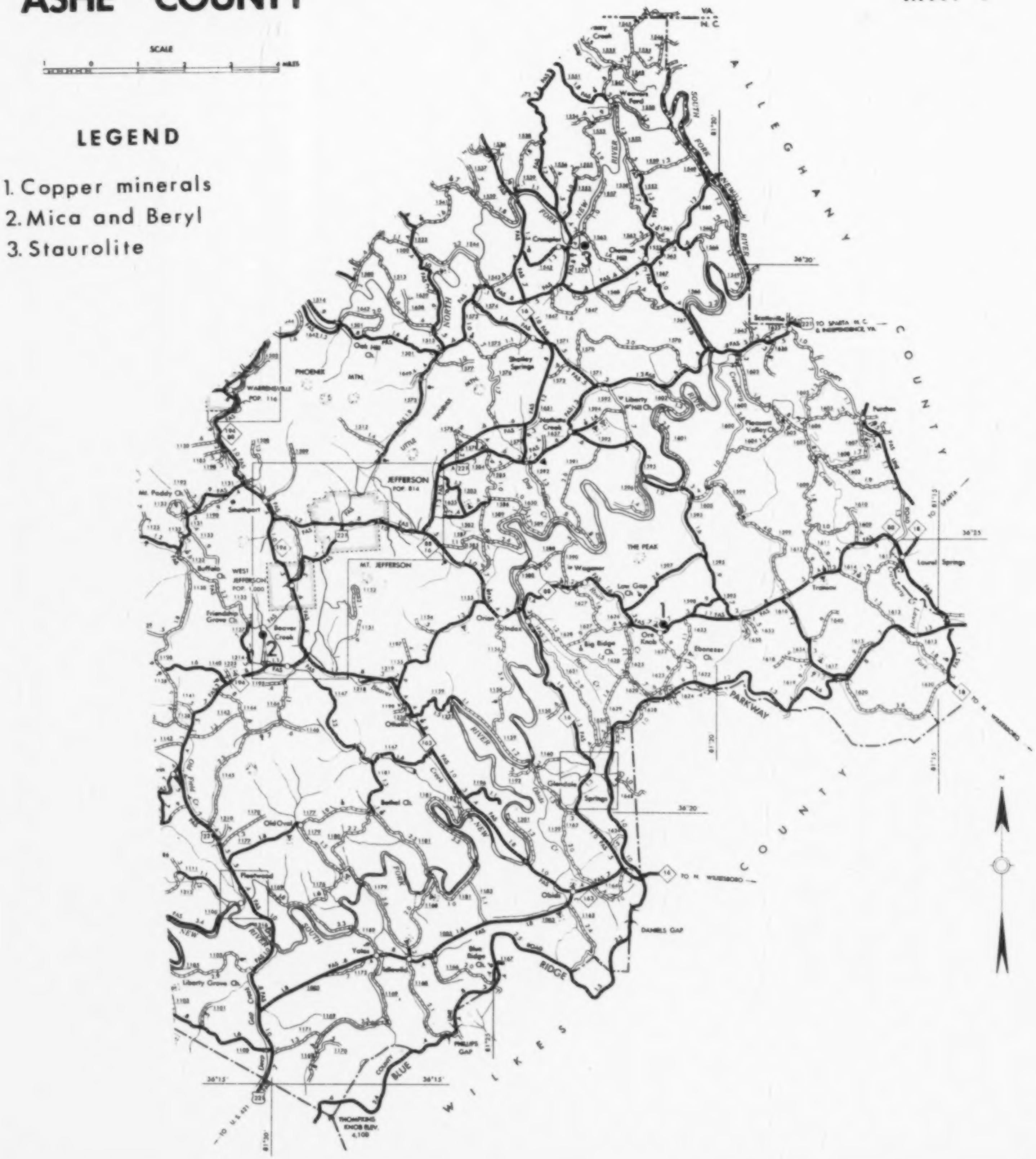
Molybdenite, Malachite, and Sphalerite : The Maxwell copper mine, also known as the Peach Bottom mine, is located west of Stratford in the area between Stratford and Elk Creek (see Map 3, locality 3). In addition to *molybdenite*, *sphalerite and malachite*, the ore vein carries also, *pyrite*, *chalcopyrite*, *galena and cuprite*.

Ashe County

Copper minerals: The Ore Knob mine is located in east-central Ashe County on N.C. 88, just north of the village of Ore Knob. The large dump at the mine contains the following minerals: *biotite*, *actinolite*, *garnet*, *hornblende*, *siderite*, *chalcopyrite*, *pyrite*, *cuprite*, *native copper* (in with the biotite), *arsenopyrite*, *malachite and azurite*. The mine was operated by Appalachian Sulphides, Incorporated until 1962 when mining was discontinued. The principle ore mineral was *chalcopyrite* (see Map 4, locality 1).

ASHE COUNTY

MAP 4


SCALE
1 0 1 2 3 4 MILES
VA.
N.C.
ALLEGHANY COUNTY
SOUTH FORK
NEW RIVER
NORTH FORK
36°20'
81°30'
TO SPARTA, N.C. & INDEPENDENCE, VA.
Warrensville POP. 116
PHOENIX MTN.
Oak Hill Ch.
Shatley Springs
Liberty Hill Ch.
Creston
Crumpler
3
JEFFERSON POP. 814
MT. JEFFERSON
WEST JEFFERSON POP. 1,000
Smethport
Mt. Paddy Ch.
Friendship Grove Ch.
Beaver Creek
2
THE PEAK
Low Gap Ch.
Ore Knob
1
Big Ridge Ch.
Ebenezer Ch.
Laurel Springs
36°25'
81°15'
PARKWAY
TO N. WILKESBORO
Glendale Springs
Bethel Ch.
Old Orchard
Obids
DANIELS GAP
BLUE RIDGE
PHILLIPS GAP
Blue Ridge Ch.
Liberty Grove Ch.
WILKES COUNTY
36°15'
THOMPKINS KNOB ELEV. 4,100
TO U.S. 421
N

LEGEND

1. Copper minerals
2. Mica and Beryl
3. Staurolite

Mica and Beryl: The Duncan mine, 1.2 miles southwest of West Jefferson, was worked for *mica* but also produced some *beryl*. The following minerals can be found at the Duncan Mine: *beryl*, *muscovite*, *biotite*, *garnet*, *feldspar and quartz* (see Map 4, locality 2).

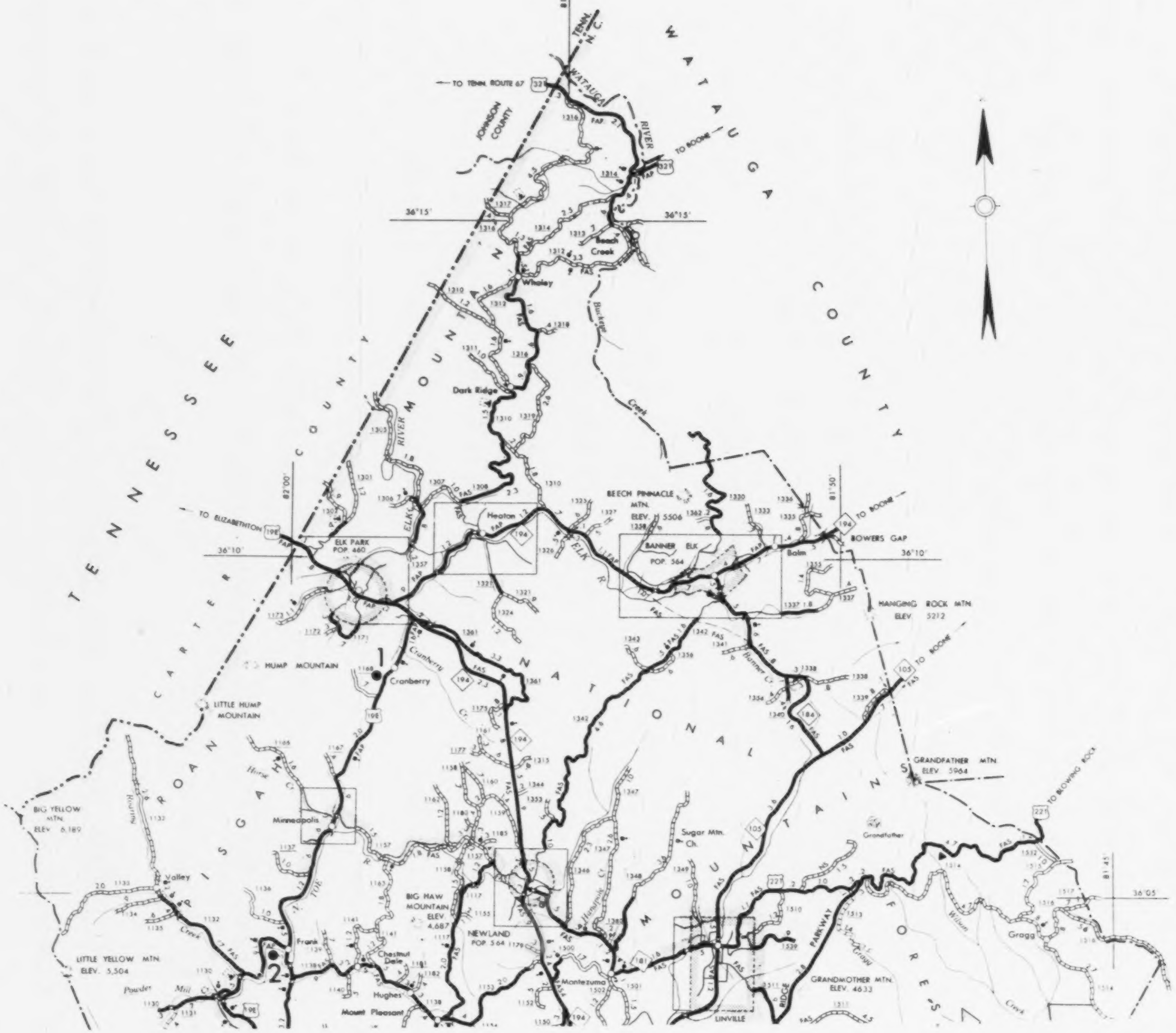
Staurolite: Well formed *staurolite* crystals are reported to occur in a muscovite-biotite gneiss in an area in the east side of the North Fork of the New River, approximately 0.5 mile east of Crumpler (see Map 4, locality 3).

Avery County

Magnetite and Epidote: The Cranberry Iron mine, located one mile south-southwest of Cranberry (see Map 5, locality 1), has produced *magnetite* with a gangue consisting of *uralite*, *hornblende*, *epidote and garnet*. Some *magnetite* crystals were found by the authors with faces up to 4 inches on a face. Some of the dump material was used as ballast in the construction of a now abandoned railroad to carry ore from the mine. *Epidote*, which is part of the ballast of this abandoned railroad, has been found east of the mine and approximately 100 yards east of U.S. 19-E. This material takes a good polish and has been used extensively for making cabochon cuts. A small dump is maintained for collectors near the main office.

Vermiculite, Anthophyllite and Dunite: The Frank deposit is 0.25 mile west of the Frank Post Office on U.S. Highway 19-E (see Map 5, locality 2). The *vermiculite* is associated with *anthophyllite* zones in a *dunite* mass approximately 1400 feet long and 400 feet wide. Frank

MAP 5


WATAUGA COUNTY
TENNESSEE
CARTER COUNTY
JOHNSON COUNTY
TENN. N.C.
TO TENN. ROUTE 67
TO BOONE
TO ELIZABETHTON
TO BLOWING ROCK
WATAUGA RIVER
ELK RIVER
Beech Creek
Buckeye Creek
Whaley
Dark Ridge
Heaton
ELK PARK POP. 460
BEECH PINNACLE MTN. ELEV. 5506
BANNER ELK POP. 364
Balm
BOWERS GAP
HANGING ROCK MTN. ELEV. 5212
GRANDFATHER MTN. ELEV. 5964
Grandfather
HUMP MOUNTAIN
LITTLE HUMP MOUNTAIN
Cranberry
BIG YELLOW MTN. ELEV. 6,189
Minneapolis
Valley
LITTLE YELLOW MTN. ELEV. 5,504
Frank
Chestnut Dale
Hughes
Mount Pleasant
BIG HAW MOUNTAIN ELEV. 4,687
NEWLAND POP. 564
Montezuma
Sugar Mtn. Ch.
LINVILLE
GRANDMOTHER MTN. ELEV. 4633
Gragg
PARKWAY
PISGAH NATIONAL FOREST
ROAN MOUNTAIN
36°15'
36°10'
36°05'
81°55'
82°00'
81°50'
81°45'
1
2

LEGEND

1. Magnetite and Epidote
2. Vermiculite, Anthophyllite and Dunite

AVERY COUNTY

SCALE
1 0 1 2 3 4 MILES

is south of Cranberry on 19-E between Newland and Spruce Pine.

Buncombe County

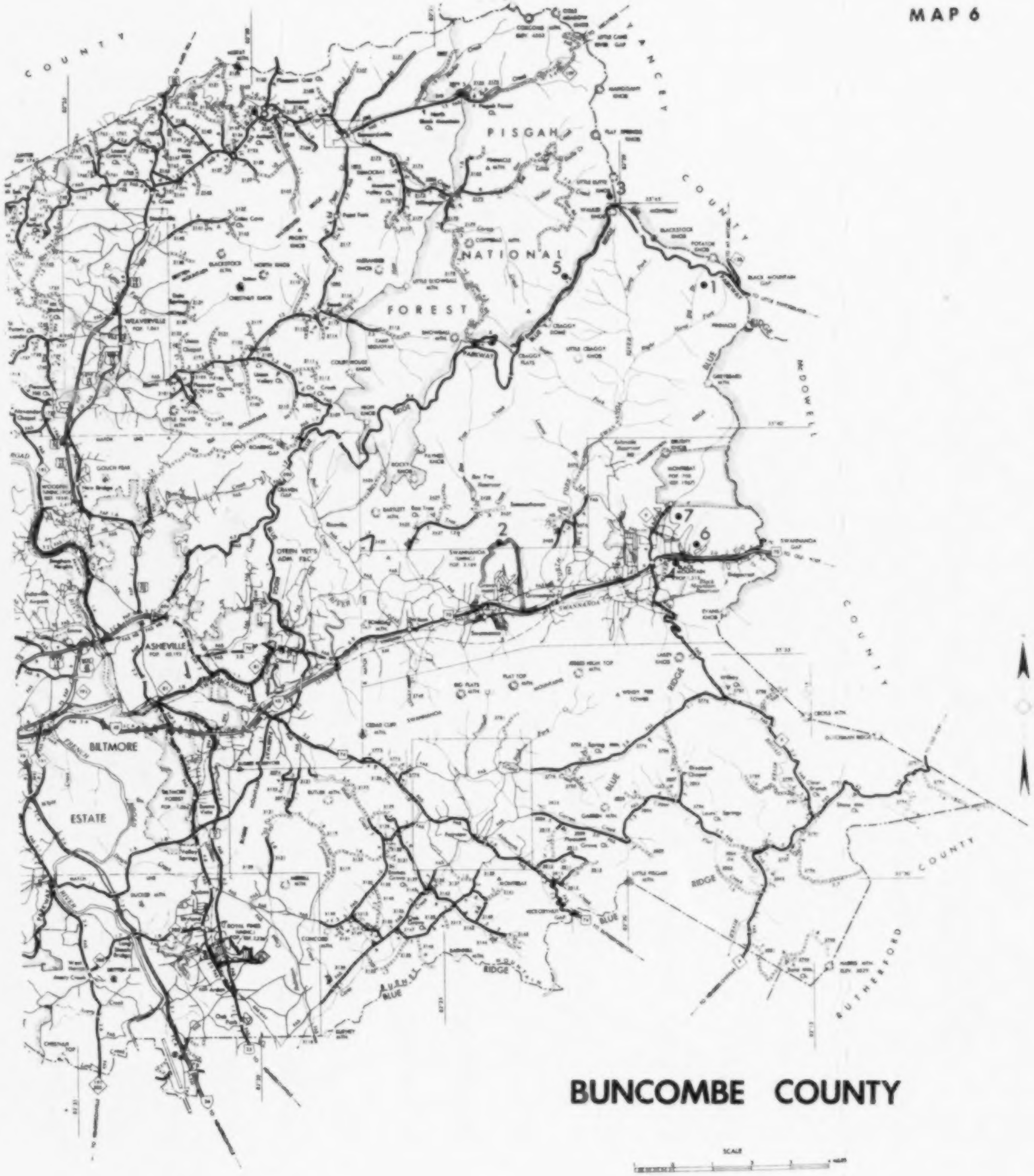
Garnet: *Garnet* has been found in Buncombe County at Potato Gap on the Blue Ridge Parkway, northeast of the Craggy Picnic Area (Mr. Charles O. Hare, Tryon, Personal Communication) (see Map 6, locality 1). *Garnet* also occurs in an area extending from the east shore of Bee Tree Reservoir south to Grovemont (see Map 6, locality 2).

Corundum: Pink *corundum* has been mined 0.5 mile north of the Blue Ridge Parkway at Balsam Gap (see Map 6, locality 3). *Corundum* also occurs south of Swannanoa Gap at Ridgecrest (see Map 6, locality 4).

Kyanite: *Kyanite* can be found at several localities in the county. A deep sapphire-blue variety occurs 100 yards northwest of the Blue Ridge Parkway, 1.4 miles southeast of Balsam Gap (see Map 6, locality 5). *Kyanite* also is found at Lookout Mountain ,north of the town of Black Mountain (Mr. Claude Platz, Personal Communication) (see Map 6, locality 6). A *Kyanite* and *sapphire corundum* area lies northeast of Black Mountain and is located on the Levine property now being operated as the J.C. Dude Ranch (Mr. Claude Platz, Asheville, Personal Communication) (see Map 6, locality 7).

Moonstone and Associated Minerals: The Goldsmith mine, located west of Democrat, contains *moonstone, chalcedony, garnet, olivine and vermiculite*. The mine can be reached by taking highway N.C. 197 west out of Democrat for 0.8 mile and turning north on SR 2161 for 0.2 mile (see

MAP 6


YANCEY COUNTY
McDOWELL COUNTY
RUTHERFORD COUNTY
COUNTY
PISGAH
NATIONAL
FOREST
ASHEVILLE
WEAVERVILLE
BILTMORE
ESTATE
SWANNANOA
BLUE RIDGE
SCALE
1
2
3
5
6
7
8

BUNCOMBE COUNTY

LEGEND

1. Garnet
2. Garnet
3. Corundum
4. Corundum
5. Kyanite
6. Kyanite
7. Kyanite and Sapphire
8. Moonstone

Map 6, locality 8). The mine is located in an open cut on the northeast side of the road bank (Mr. Robert A. Campbell, Asheville, Personal Communication).

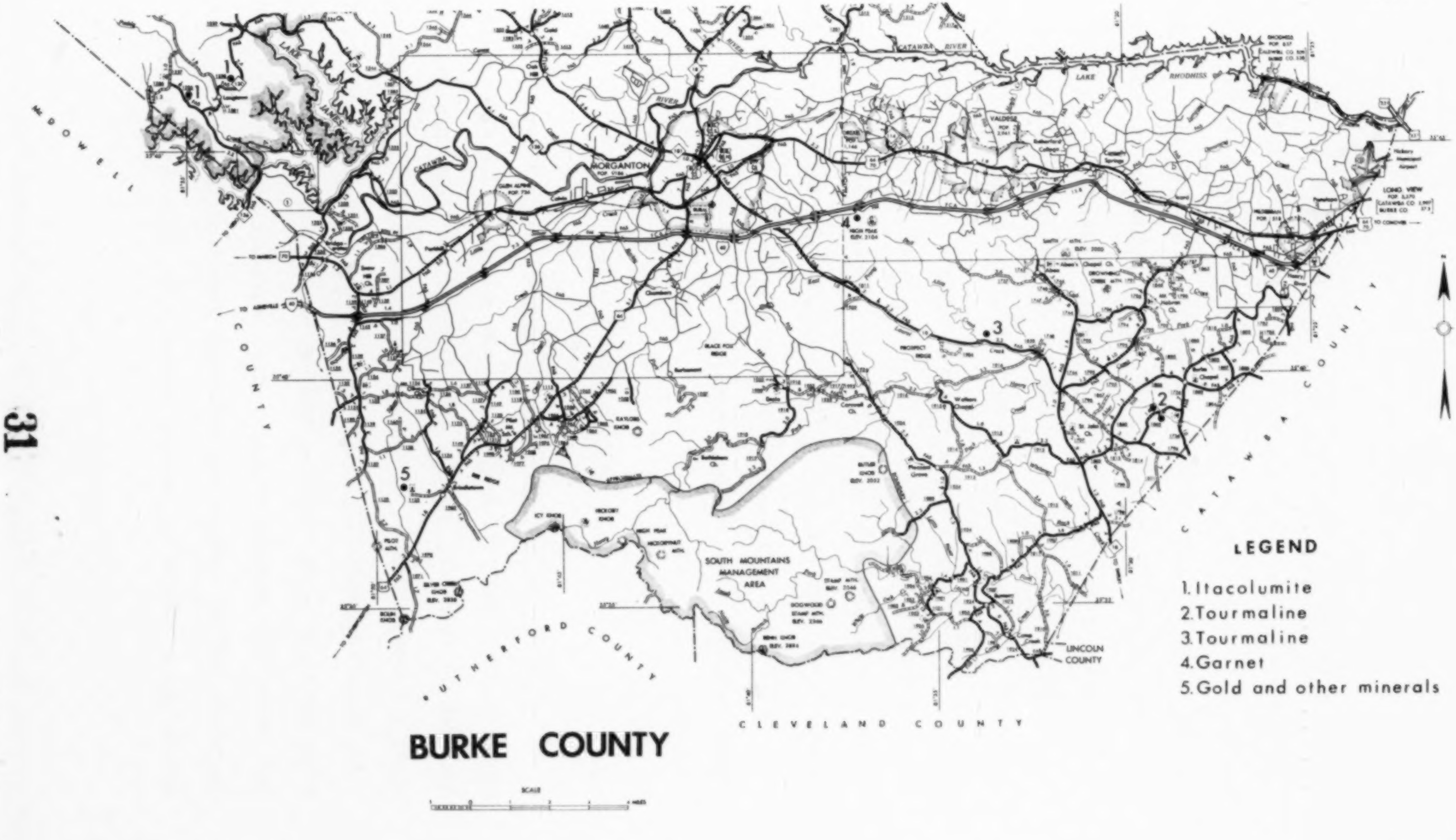
Burke County

Itacolumite: *Itacolumite*, or flexible sandstone, occurs as boulders weathered from the Erwin quartzite along SR 1236, 5.0 miles northwest of Bridgewater. Boulders of *itacolumite* can also be found on highway N.C. 126 on the north side of the road, 0.9 mile east of its junction with SR 1236 (see Map 7, locality 1). The *itacolumite* in this area is generally inferior to the Stokes County flexible sandstone.

Tourmaline: Black *tourmaline* crystals up to 1/2 inch in diameter have been found in a field southwest of Burke Chapel. The locality can be reached by taking SR 1736 south from Burke Chapel and turning west at 0.5 mile, onto SR 1802 for approximately 0.6 mile (see Map 7, locality 2). The field lies south of the road and can be seen from the road. Another area where *tourmaline*, as well as *quartz crystals*, can be found is almost due north of this area, approximately 0.3 mile north of the road. *Quartz* and *tourmaline* crystals occur on the north side of highway N.C. 18, 8.50 miles southeast of Morganton (Mr. Adam Street, Valdese, Personal Communication) (see Map 7, locality 3).

Garnet: *Garnet* can be found weathered out of mica schist 0.3 mile north of High Peak, which lies 2.0 miles south of Drexel (see Map 7, locality 4).

MAP 7



BURKE COUNTY

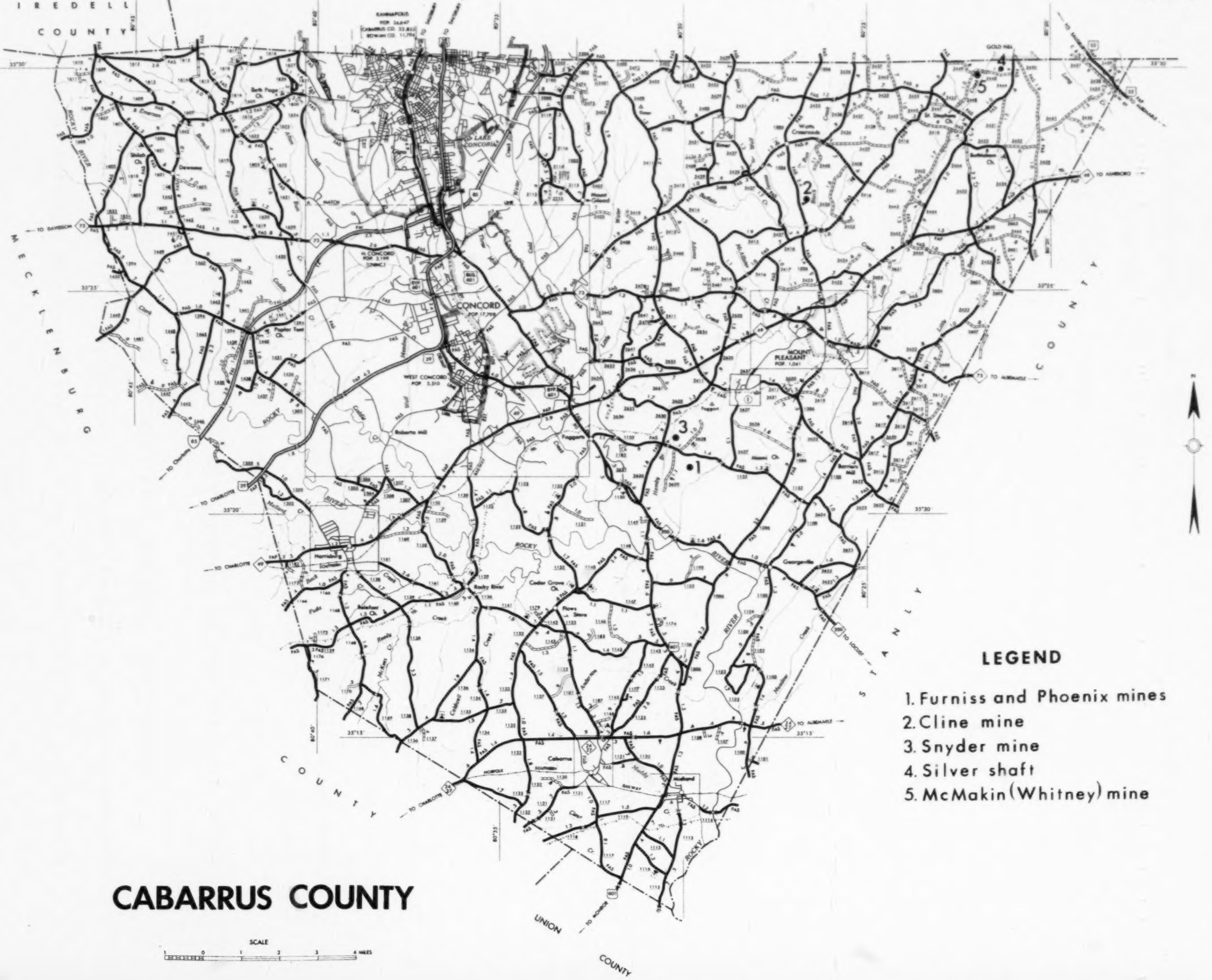
McDOWELL COUNTY
CATAWBA COUNTY
RUTHERFORD COUNTY
CLEVELAND COUNTY
LINCOLN COUNTY
MORGANTON
VALDESE
LAKE JAMES
CATAWBA RIVER
LAKE RHODHISS
SOUTH MOUNTAINS MANAGEMENT AREA
LONG VIEW
TO CONOVER
TO MARION
TO ASHEVILLE
LEGEND
1. Itacolumite
2. Tourmaline
3. Tourmaline
4. Garnet
5. Gold and other minerals
1
2
3
4
5
SCALE

Gold, Monazite and Other Minerals: Brindletown Creek, Silver Creek and Hall Creek in the Brindletown section carry *gold and monazite* (see Map 7, locality 5). Genth and Kerr (1885, p. 98) describe the following list of minerals which have been identified in the sands of Brindletown Creek and the old J.C. Mills gold mine: *gold, tetradymite, brookite, smoky quartz, chromite, anatase, beryl, tourmaline, black and green pyrope, zircon, epidote, sillimanite, columbite, samarskite, xenotime, monazite, montanite, fergusonite, rutherfordite, talc, tremolite, magnetite, limonite, ilmenite, hematite, tellerium, asbestos, kyanite, corundum, graphite, rutile and actinolite.* A small *diamond* was found by Dr. F.M. Stephenson at the Brindletown Creek Ford in 1843, and another small *diamond* was discovered in the same vicinity by Professor G.W. Featherstonhaught (Kunz, 1907, p. 6). Although there are several reports of *diamond* finds in this region recently, none have been confirmed.

Cabarrus County

Minerals of the Cabarrus County Mines: Cabarrus County contains many old mines including such famous ones as: the Cline mine, north of Mt. Pleasant (*siderite, pyrite, scheelite and chalcopyrite*); the Snyder mine, 5.3 miles southeast of Concord (*chalcopyrite, bornite, rhodochrosite, magnetite, malachite, siderite and pyrite*); the Silver Shaft, 8.3 miles northeast of Mt. Pleasant (*pyrite, chalcopyrite, malachite, galena and sphalerite*); McMakin (Whitney) mine, southwest of Gold Hill (*silver, argentite, galena, sphalerite, proustite, tetrahedrite (variety fibergite), pyrolusite, pyromorphite, barite, grossularite, rhodochrosite and*

MAP 8


IREDELL COUNTY
ROWAN COUNTY
MECKLENBURG COUNTY
STANLY COUNTY
UNION COUNTY
CONCORD POP. 17,799
WEST CONCORD POP. 5,510
MOUNT PLEASANT POP. 1,041
Georgeville
Harrisburg
Rocky River
Cedar Grove Ch.
Flows Store
Cabarrus
Midland
GOLD HILL
Watts Crossroads
Roberta Mill
Faggarts
LAKE CONCORD
TO DAVIDSON
TO CHARLOTTE
TO ALBEMARLE
TO ASHEBORO
TO LOCUST
TO MONROE
ROCKY RIVER
35°30'
35°25'
35°20'
35°15'
80°45'
80°40'
80°35'
80°30'
80°25'
80°20'
N
SCALE
0
1
2
3
4 MILES
1
2
3
4
5

CABARRUS COUNTY

LEGEND

1. Furniss and Phoenix mines
2. Cline mine
3. Snyder mine
4. Silver shaft
5. McMakin (Whitney) mine

and magnesite). These are a few of the many mines which have been operated in Cabarrus County (Genth & Kerr, 1885, pp. 99-100). Probably two of the more promising mines for collectors in the county are the Furniss and the Phoenix mines (see Map 8, locality 1).

Furniss Mine: The Furniss mine was investigated by the Carolina Tungsten Company in 1956. The minerals occurring at this site include *scheelite, siderite, malachite, barite, pyrite, chalcopyrite and epidote.* The mine can be reached by taking highway U.S. 601 southeast out of Concord for 0.9 mile beyond its intersection with highway N.C. 49, and turning east on SR 1132 for 2.9 miles. The mine is located on the left fork of a farm road which enters the paved road at this point. The Phoenix mine, which carries a similar mineral assemblage, is located on the right fork of this farm road. This mine has not been operated in recent years.

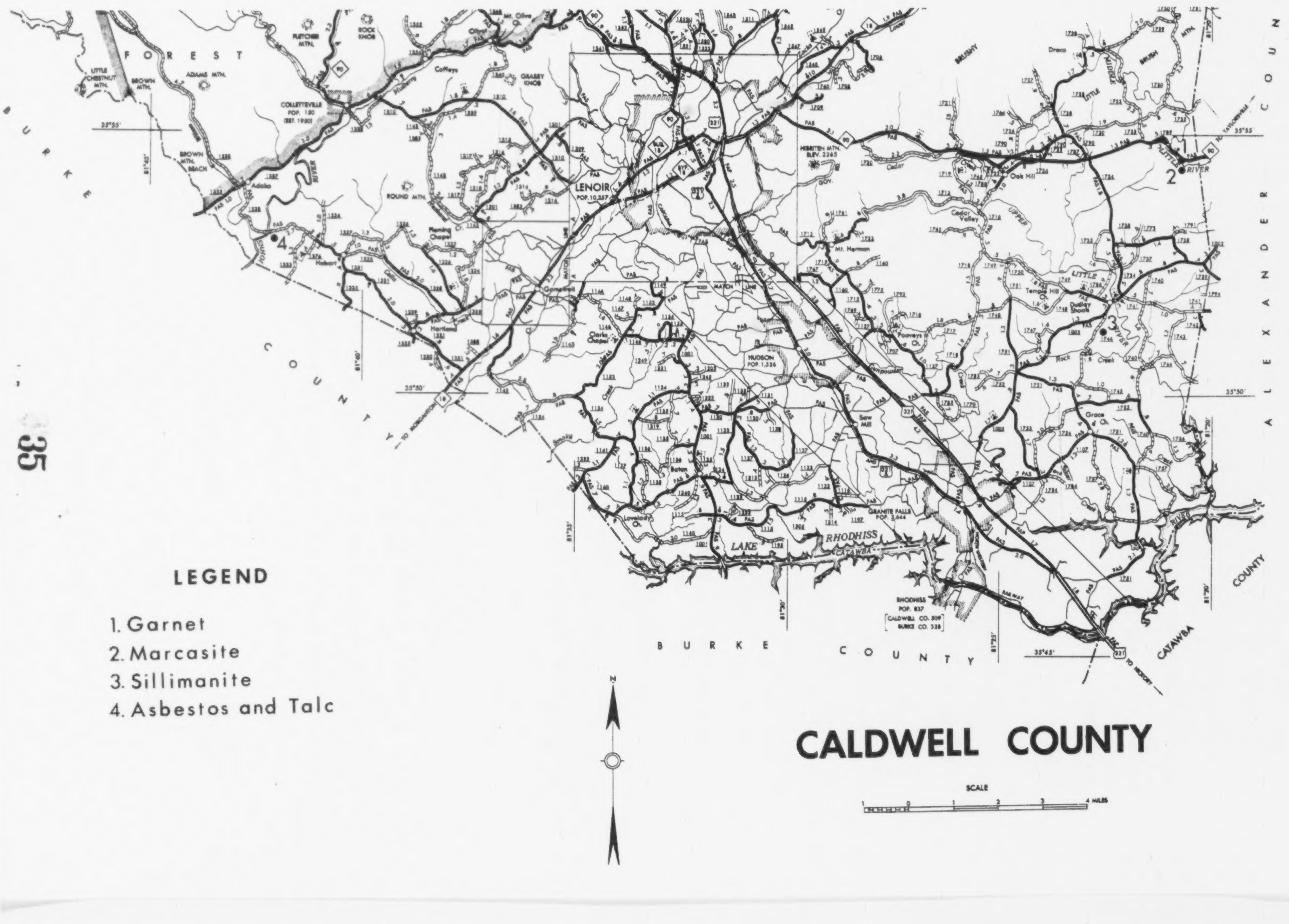
Caldwell County

Garnet: *Rhodolite garnet* occurs in biotite schist 0.4 mile west of the Caldwell-Alexander County line just east of the Little River on N.C. 90. The *garnets* occur in shattered masses up to one inch in diameter (see Map 9, locality 1).

Marcasite: *Marcasite* occurs 0.4 mile west of the Caldwell-Alexander County line just west of the Little River on N.C. 90 (see Map 9, locality 2).

Sillimanite: *Sillimanite* is reported to occur within a mica schist in the southern part of Caldwell County. The schist occurs as a band and passes the towns of Oak Hill, Hudson, Saw Mills and Baton. As reported in 1958,

MAP 9


ALEXANDER COUNTY
BURKE COUNTY
BURKE COUNTY
CATAWBA COUNTY
FOREST
LITTLE CHESTNUT MTN.
BROWN MTN.
ADAMS MTN.
BROWN MTN. BEACH
Adako
COLLETTSVILLE POP. 150 (EST. 1950)
FLETCHER MTN.
ROCK KNOB
GRASSY KNOB
ROUND MTN.
Coffeys
Mt. Olive
Hobart
Hartland
Fleming Chapel
Gamewell
LENOIR POP. 10,257
HIBRITEN MTN. ELEV. 2265
Cedar Valley
Oak Hill
Draco
BRUSHY MTN.
Mt. Herman
Temple Hill
Dudley Shoals
Clarks Chapel
HUDSON POP. 1,536
Saw Mill
Baton
Lovelady
GRANITE FALLS POP. 2,644
LAKE RHODHISS
CATAWBA
RHODHISS POP. 837 CALDWELL CO. 509 BURKE CO. 328
Grace
Rock Creek
RIVER
TO MORGANTON
TO HICKORY
TO TAYLORSVILLE
35°55'
35°50'
35°45'
81°45'
81°40'
81°35'
81°30'
81°25'
81°20'
1
2
3
4
N
SCALE
1 0 1 2 3 4 MILES

CALDWELL COUNTY

LEGEND

1. Garnet
2. Marcasite
3. Sillimanite
4. Asbestos and Talc

a good collecting site lies on the property of Mr. Gather Teague, 0.7 mile southwest of Dudley Shoals. This area can be reached from Dudley Shoals by following the Cedar Valley Road,SR 1002,southwest for 0.3 mile and turning south on SR 1746 for 0.5 mile. The deposit lies on the south side of the road (see Map 9, locality 3).

Anthophyllite Asbestos and Talc: A deposit of *anthophyllite asbestos and talc* occurs in western Caldwell County. This deposit is described by Conrad, Wilson, Allen and Wright (1963, p. 42) as occurring 3.2 miles, airline, southwest of Colletsville on the east side of John's River. It can be reached by travelling on SR 1328 for 1.6 miles southeast of its intersection with SR 1335, 1.0 mile northeast of the Burke-Caldwell County line. The deposit is located near the crest of a steep hill 300 feet south of SR 1328 and 500 feet east of mine workings (see Map 9, locality 4).

Anthophyllite Asbestos in North Carolina: North Carolina Department of Conservation and Development, *Division of Mineral Resources, Bulletin* 77, Raleigh, North Carolina (1963).

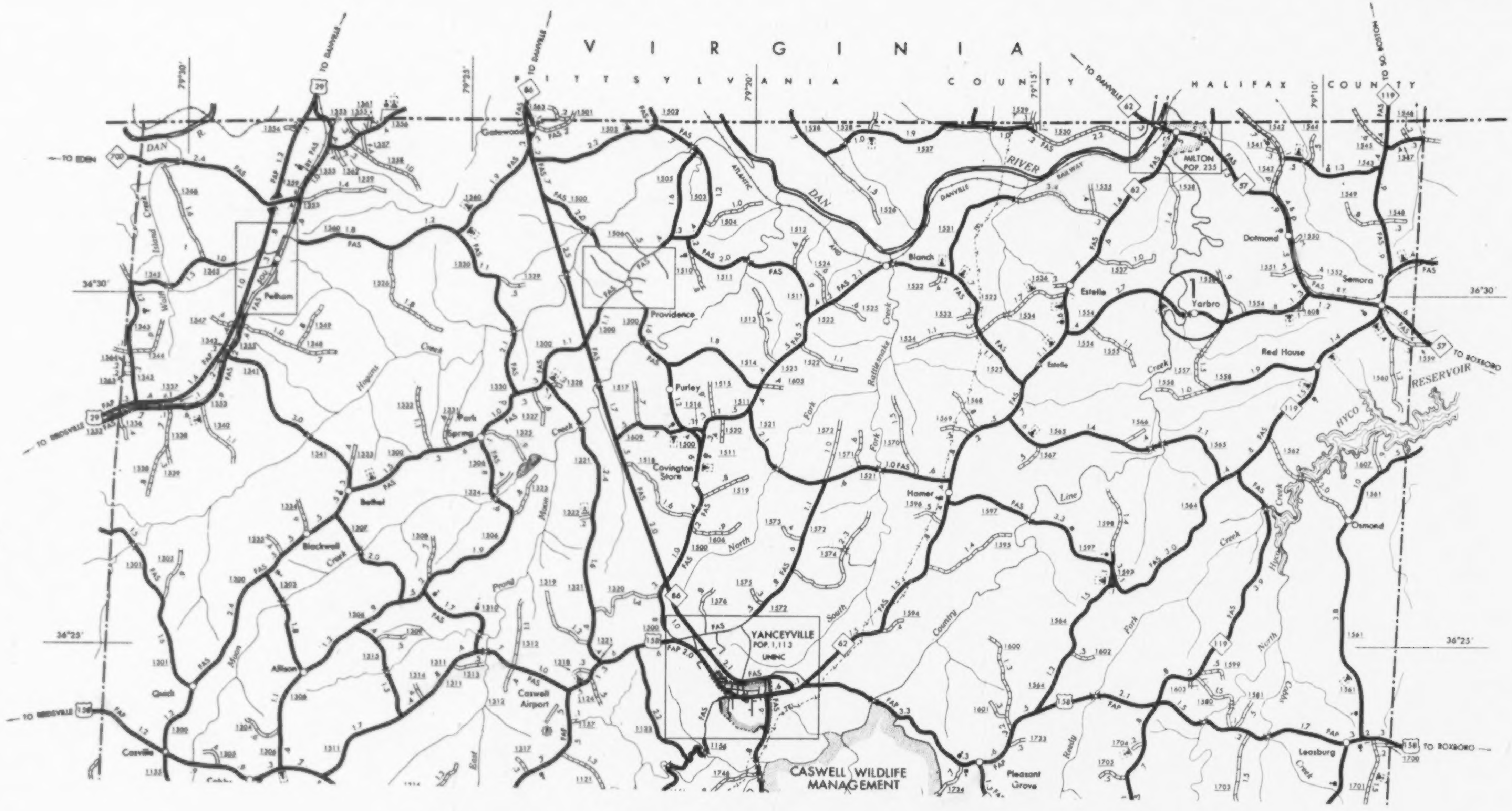
Caswell County

Pegmatite Minerals: Many pegmatite deposits occur in the Milton area of Caswell County (see Map 10, locality 1). Some prospecting for *mica* has been done in years past and some prospects are open. The following minerals are reported from pegmatites in the Milton area: *quartz, microcline, albite, muscovite, biotite, garnet and apatite.*

Catawba County

Beryl: The Bessie Hudson mine, located in southwestern Catawba

MAP 10


VIRGINIA
PITTSYLVANIA COUNTY
HALIFAX COUNTY
TO DANVILLE
TO SO. BOSTON
TO EDEN
TO REIDSVILLE
TO ROXBORO
DAN R.
DAN RIVER
DANVILLE AND ATLANTIC RAILWAY
Gatewood
MILTON POP. 235
Dotmond
Semora
Yarbro
Estelle
Blanch
Red House
HYCO RESERVOIR
Providence
Purley
Covington Store
Pelham
Park Spring
Bethel
Blackwell
Allison
Quick
Casville
Caswell Airport
Hamer
YANCEYVILLE POP. 1,113 UMNC
Osmond
Leasburg
Pleasant Grove
CASWELL WILDLIFE MANAGEMENT
Hogans Creek
Moon Creek
Rattlesnake Creek
Country Line Creek
North Fork
South Fork
Cobbs Creek
Hyco Creek
Reedy Fork
Prong
Wolf Island Creek
79°30'
79°25'
79°20'
79°15'
79°10'
36°30'
36°25'
1

CASWELL COUNTY

SCALE

0 1 2 3 4 MILES

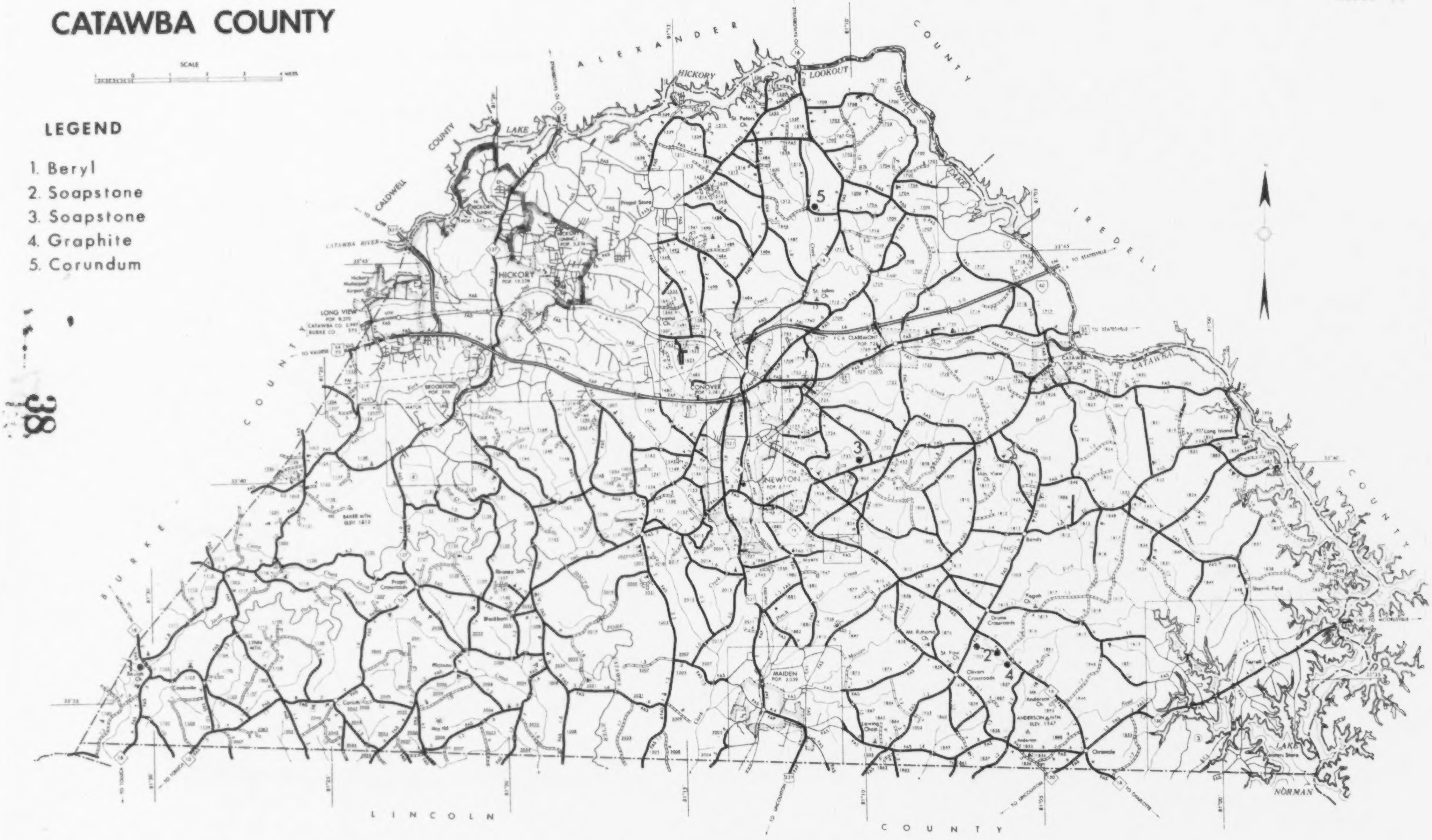
N

LEGEND

1. Pegmatite minerals

MAP 11

CATAWBA COUNTY


SCALE
MILES
ALEXANDER COUNTY
IREDELL COUNTY
LINCOLN COUNTY
BURKE COUNTY
CALDWELL COUNTY
LAKE HICKORY
LOOKOUT SHOALS LAKE
LAKE NORMAN
CATAWBA RIVER
HICKORY
LONG VIEW
BROOKFORD
CONOVER
CLAREMONT
CATAWBA
NEWTON
MAIDEN
Sherrill Ford
Terrell
Bandy
Olivers Crossroads
Drums Crossroads
Propst Crossroads
Blackburn
Startown
BAKER MTN.
ANDERSON MTN.
Hickory Municipal Airport
TO STATESVILLE
TO CHARLOTTE
TO LINCOLNTON
TO VALDESE
1
2
3
4
5

LEGEND

1. Beryl
2. Soapstone
3. Soapstone
4. Graphite
5. Corundum

County is situated west of highway N.C. 18, 0.4 mile east of the Burke-Catawba County line in an area between two tributaries of Jacob Creek (see Map 11, locality 1). The mine has produced beryl and, in the immediate vicinity of the mine, *chalcopyrite* and *garnet* have been found.

Soapstone: *Soapstone* occurs in southeastern Catawba County on South Creek, 0.4 mile south of the intersection of highway N.C. 16 and SR 1003, also 0.5 mile southeast of this location (see Map 11, locality 2). *Soapstone* can also be found on McLin Creek north of highway N.C. 10, two miles east of the Newton city limits (see Map 11, locality 3).

Graphite: *Graphite* occurs in the southeastern part of the county in the area where highway N.C. 16 crosses the south fork of South Creek (see Map 11, locality 4).

Corundum: *Corundum* is found five miles north of Conover. This locality can be reached by taking highway N.C.16, north out of Conover for 5.9 miles and turning west on SR 1515 for 0.9 mile to a crossroad. The locality lies northeast of the crossroads (see Map 11, locality 5).

Chatham County

Copper: The Bear Creek *copper* prospect in southwestern Chatham County has produced specimens of *azurite and malachite*. The prospect can be reached by following highway N.C. 22, southeast from Bennett for approximately 2.6 miles and turning east on N.C. 42 for 1.9 miles to the junction of N.C. 42 and SR 2318. The site is located 100 yards northeast of this crossroads (see Map 12, locality 1). *Azurite* and *malachite*, as well as *jasper*, can be found at the Phillips prospect which lies east of the Bear Creek prospect. This area can most easily be reached by taking SR 1006 south-southeast from Harpers Crossroads for 2.2 miles and turning east onto SR 2314 for approximately 0.4 mile (see Map 12, locality 2). The deposit lies just north of the intersection of SR 2314 and SR 2316.

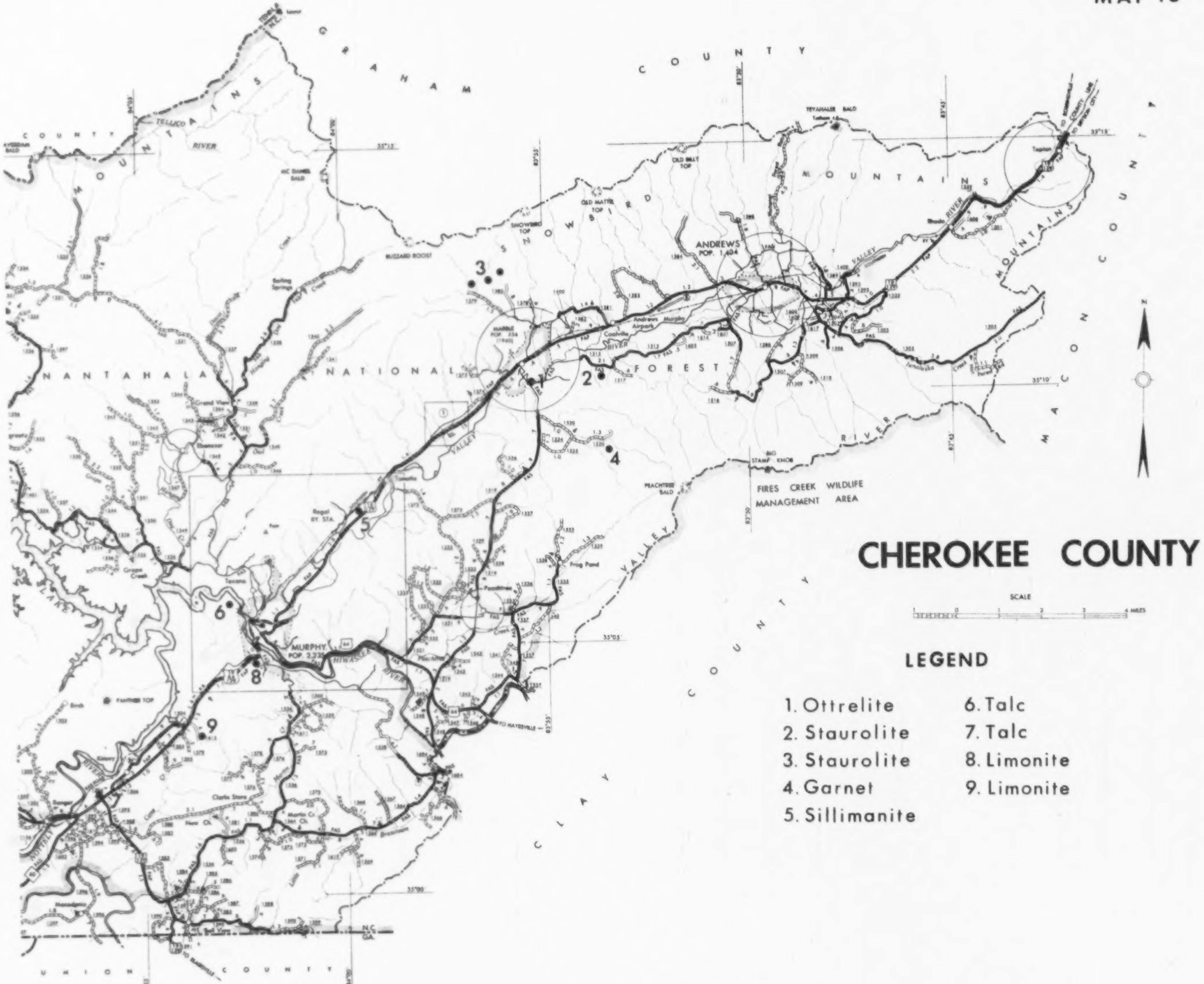
Limonite and Goethite: *Limonite* occurs at Ore Hill in Chatham County, 4.7 miles south of Siler City. Iron ore was mined here during the Revolutionary War and smelted in a nearby furnace. This locality can be reached by taking old U.S. 421 south from Siler City for 5.2 miles to Mt. Vernon Springs and turning west on SR 1134 (see Map 12, locality 3). The old mine is on the south side of this road behind the old furnace, which is approximately 100 yards west of the Southern Railway tracks.

Cherokee County

Ottrelite: *Ottrelite* (chloritoid) occurs in several places in Cherokee County, but one of the better localities is south of Marble, in the area where the road to Peachtree, SR 1519, crosses the Valley River (Mr. Arthur Palmer, Marble, Personal Communication) (see Map 13, locality 1).

Staurolite: *Staurolite* can be found 1.0 mile southeast of Marble on SR 1515 adjacent to the south bank of the Valley River between Parsons' Branch and Burnt Branch (see Map 13, locality 2). *Staurolite* also occurs 1.3 miles north of Marble in the stream beds of Hyatt Creek and its tributaries, Fishermare Branch and Allmon Creek (Mr. Arthur Palmer, Marble, Personal Communication) (see Map 13, locality 3).

MAP 13



CHEROKEE COUNTY

SCALE
4 MILES
LEGEND
1. Ottrelite
2. Staurolite
3. Staurolite
4. Garnet
5. Sillimanite
6. Talc
7. Talc
8. Limonite
9. Limonite
N
GRAHAM COUNTY
MACON COUNTY
CLAY COUNTY
UNION COUNTY
COUNTY
N.C.
GA.
NANTAHALA NATIONAL FOREST
SNOWBIRD MOUNTAINS
VALLEY RIVER MOUNTAINS
UNICOI MOUNTAINS
TELLICO RIVER
VALLEY RIVER
HIWASSEE RIVER
ANDREWS POP. 1,404
MURPHY POP. 2,235
MARBLE POP. 356
Topton
Regal RY. STA.
Grand View
Tomotla
Andrews Murphy Airport
Coalville
Frog Pond
Clarks Store
Brasstown
Peachtree
FIRES CREEK WILDLIFE MANAGEMENT AREA
BIG STAMP KNOB
PEACHTREE BALD
TEYAHALEE BALD
OLD BILLY TOP
OLD MATTIE TOP
SNOWBIRD TOP
BUZZARD ROOST
MC DANIEL BALD
AVERHAM BALD
PANTHER TOP
Boiling Springs
TO HAYESVILLE
35°15'
35°10'
35°05'
35°00'
83°45'
83°50'
83°55'
84°00'
84°05'

Garnet: *Garnet* has been found in the Little Snowbird section, 2.6 miles south-southeast of Marble, near the headwaters of Vengeance Creek in Big Cove (see Map 13, locality 4).

Sillimanite: Boulders containing *sillimanite* occur on the northwest side of highway U.S. 19, south of Marble below Tomotla Bottoms (see Map 13, locality 5) (Mr. Arthur Palmer, Marble, Personal Communication).

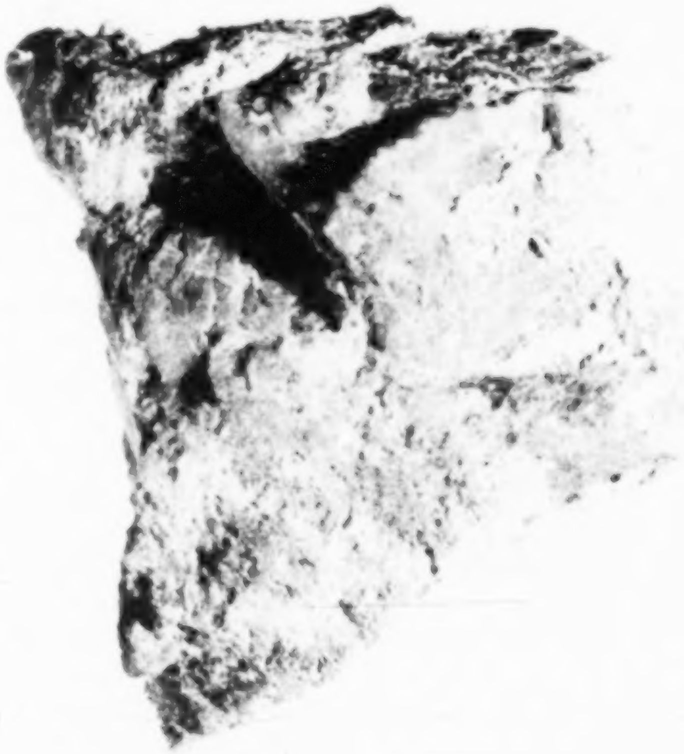
Talc: *Talc* has been mined in the Murphy area since 1859. The two largest mines in the area are those of the Hitchcock Corporation located 1.5 miles north of Murphy (see Map 13, locality 6) and, also approximately 4.2 miles southwest of Murphy on the north side of highway N.C. 60 (see Map 13, locality 7). The predominant mineral at both operations is *talc;* but *tremolite*, *sillimanite* and *dravite* (brown tourmaline) are associated with the *talc* of the Hitchcock Corporation mine.

Limonite: Large *limonite* pseudomorphs after *pyrite* can be found east of highway U.S. 64, 0.6 mile southwest of the center of Murphy (see Map 13, locality 8). Massive *limonite* ore occurs over a wide area in association with the marble beds of the Murphy Marble Belt (Kerr and Hanna, 1887, p. 184). One of the areas, where iron ore was mined, is located near the end of a short dead-end (SR 1613) road which turns south off highway U.S. 64, 2.7 miles southwest of Murphy (see Map 13, locality 9).

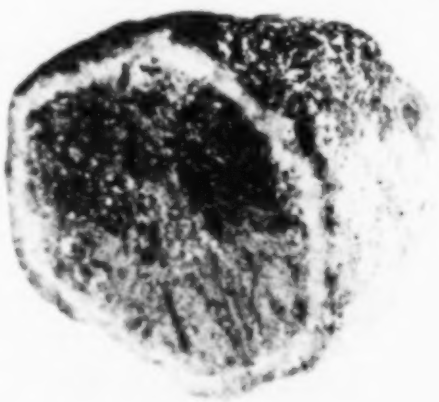
Clay County

Corundum: Clay County contains a number of peridotite and dunite bodies which have produced commercial *corundum*. Probably the largest of

PLATE NO. 4

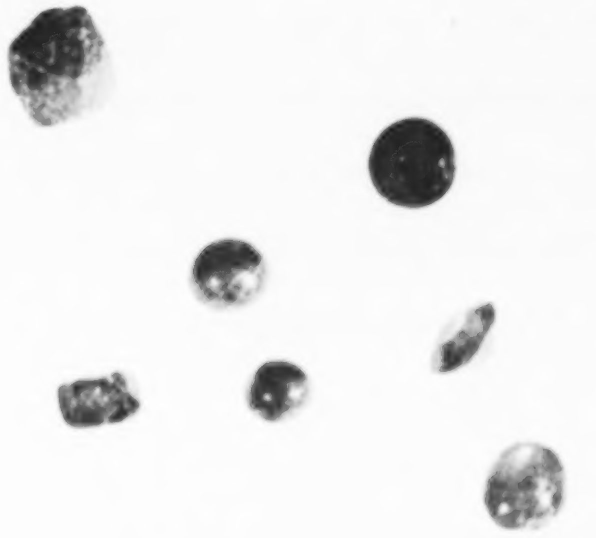


A. PINK (RUBY) CORUNDUM
Buck Creek, Clay County

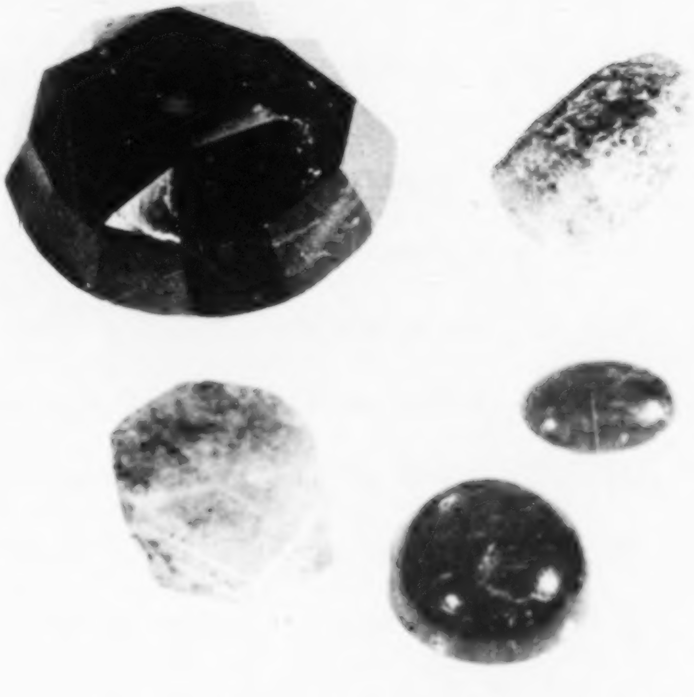


B. CORUNDUM CRYSTAL

Belts Bridge, Irdell County



C. RUBY CORUNDUM CRYSTALS AND CUT STONES
Cowee Creek, Macon County



D. SAPPHIRE CORUNDUM CRYSTALS AND CUT STONES
Macon County

COURTESY STATE MUSEUM, RALEIGH

PHOTOGRAPH BY S.W. Buchanan

these in the State is located on Buck Creek, north of Highway U.S. 64 (see Map 14, locality 1). The *corundum* in the deposit varies from gray to pink and is associated with *olivine*, *anorthite*, *picrolite*, *spinel*, *zoisite*, *augite* and *smaragdite* (Hadley, 1949, pp. 114-118). Several shafts were sunk into the deposit including the Big Shaft, located east of the U.S. Bureau of Mines buildings, 0.5 mile north of highway U.S. 64, and the Herbert mine, located 0.3 mile southwest of the Buck Creek Dude Ranch. *Smaragdite and corundum* occur on Corundum Knob, which lies approximately 0.5 mile west of the U.S. Bureau of Mines' station. *Picrolite* can be found at a culvert 300 yards beyond the Buck Creek Campgrounds.

Pink *corundum* in mica schist occurs on the farm of Mr. Wymer Burrell. This area lies 3.0 miles northeast of the village of Shooting Creek on highway U.S. 64, 0.2 mile above the Muskrat Road (see Map 14, locality 2). It has also been found along the west shore of Lake Chatuge in the area north of Myers Chapel (see Map 14, locality 3). The Behr corundum mine, which lies west of Elf School, is now covered by Lake Chatuge except at low water level. In recent years, fine cabinet specimens have been collected from this mine when the lake level has been low.

Rutile: Water-worn *rutile* crystals have been recovered from Shooting Creek west of the village of Shooting Creek in the Spring Hollow section (see Map 14, locality 4).

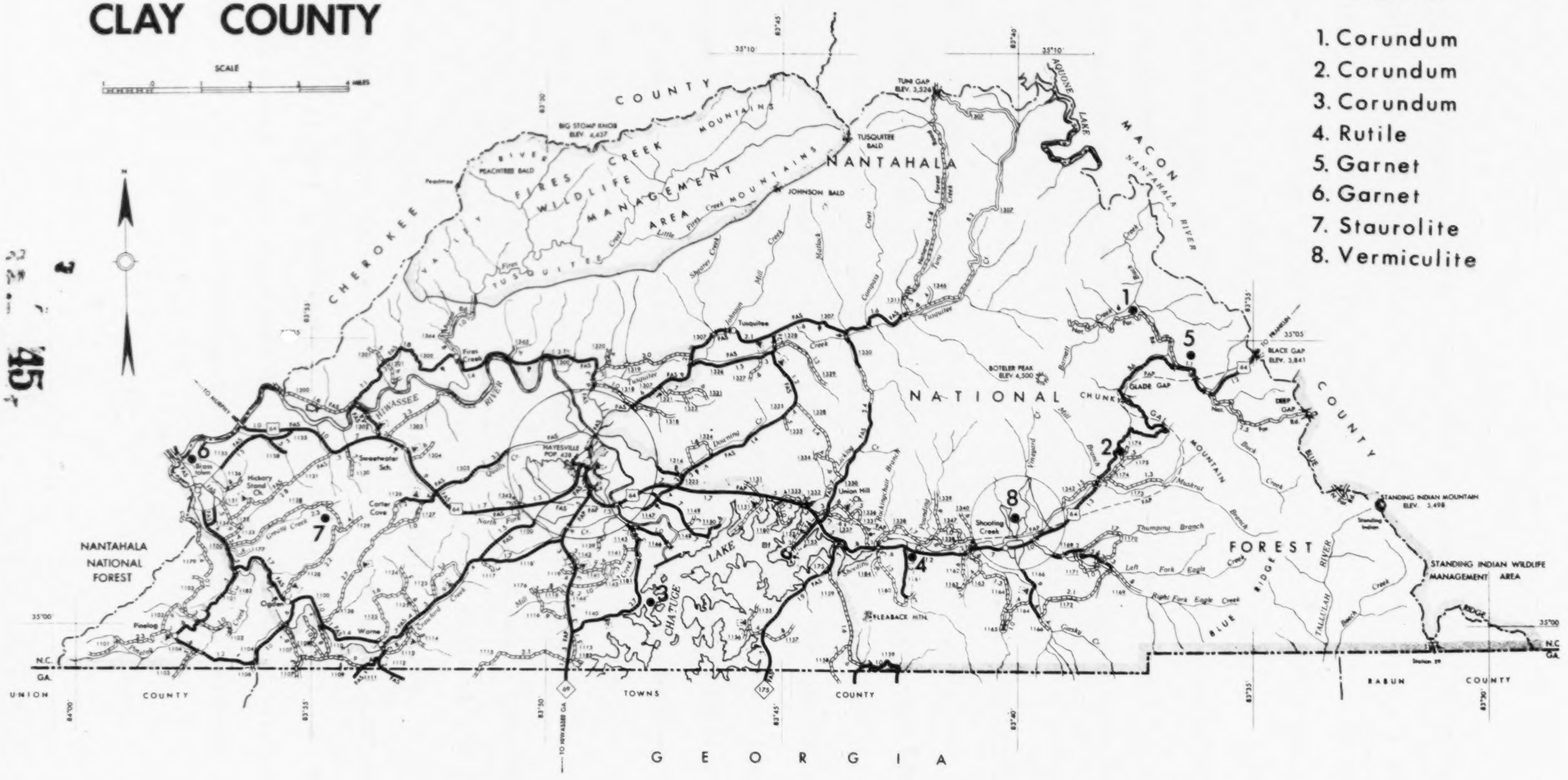
Garnet: *Almandine garnet* occurs at Park Gap and in the stream bed of Little Buck Creek where it has washed down from its source (see Map 14, locality 5). The *garnet* in this creek is so plentiful that it has been used as an abrasive by local lapidary men for tumbling stones. *Garnet* crystals are also reported to occur north of highway (old) U.S. 64, 0.5 mile west of

MAP 14

LEGEND

1. Corundum
2. Corundum
3. Corundum
4. Rutile
5. Garnet
6. Garnet
7. Staurolite
8. Vermiculite

CLAY COUNTY


SCALE
0
1
2
3
4 MILES
N
CHEROKEE COUNTY
MACON COUNTY
NANTAHALA NATIONAL FOREST
NANTAHALA NATIONAL FOREST
FIRES CREEK WILDLIFE MANAGEMENT AREA
TUSQUITEE MOUNTAINS
VALLEY RIVER MOUNTAINS
BIG STOMP KNOB ELEV. 4,437
PEACHTREE BALD
TUSQUITEE BALD
JOHNSON BALD
TUNI GAP ELEV. 3,526
AQUONE LAKE
NANTAHALA RIVER
BOTELER PEAK ELEV. 4,500
CHUNKY GAL MOUNTAIN
GLADE GAP
BLACK GAP ELEV. 3,841
DEEP GAP
STANDING INDIAN MOUNTAIN ELEV. 5,498
STANDING INDIAN WILDLIFE MANAGEMENT AREA
BLUE RIDGE
TALLULAH RIVER
HIWASSEE RIVER
HAYESVILLE POP. 428
CHATUGE LAKE
Shooting Creek
Union Hill
Sweetwater Sch.
Hickory Stand Ch.
Carter Cove
Ogden
Warne
Pinelog
Brasstown
Tusquitee
FLEABACK MTN.
1
2
3
4
5
6
7
8
35°10'
35°05'
35°00'
83°35'
83°40'
83°45'
83°50'
83°55'
84°00'
83°30'
N.C.
GA.
UNION COUNTY
TOWNS COUNTY
RABUN COUNTY
GEORGIA
TO HIAWASSEE GA.
TO MURPHY
TO FRANKLIN

Brasstown (see Map 14, locality 6) (Mr. Herman Estes, Brasstown, Personal Communication).

Staurolite: An area containing *staurolite* in mica schist lies east of Brasstown. The area can be reached by taking SR 1128 north from Ogden School for 2.3 miles. The *staurolite* deposit lies to the southwest of the road at this point (see Map 14, locality 7).

Vermiculite: *Vermiculite* occurs at several places in Clay County. Much prospecting has been done near the Shooting Creek Post Office. The Rogers Prospect, 0.6 mile northeast of Shooting Creek (see Map 14, locality 8), has yielded specimens of *vermiculite* along with *olivine* and some *pyroxenes*. One mile from the mouth of Thumping Creek and 3 miles east of the Shooting Creek Post Office, *vermiculite* has also been prospected. Several prospect pits and shafts occur at both of these localities.

Cleveland County

Quartz Crystals: *Quartz* crystals are reported (Keith and Sterrett, 1931, Map 3) at several localities in southern Cleveland County. One of these is situated in a bend of Broad River, 4.4 miles south of Shelby. The locality may be reached by taking N.C. 18 - N.C. 150 south from Shelby to where the highways divide. Follow N.C. 150 west for 1.8 miles to a crossroads and turn south onto SR 1127 for 0.4 mile. *Quartz* crystals occur in the fields both east and west of the road at this point (see Map 15, locality 1). Another *quartz* crystal locality may be reached by taking N.C. 150 for 0.7 mile beyond the above mentioned crossroads to Sharon Church and turning south on SR 1219 for 0.9 mile. The locality lies 0.1 mile east of the road (see Map 15, locality 2). A third locality is reported 0.3 mile due north of the Stice Dam on Broad River (see Map 15, locality 3). None of the above localities were field checked.

Corundum: According to Keith and Sterrett (1931, p. 13) gray and bronze *corundum* occurs as float in fields approximately 4 miles west of Earl. The *corundum* float is confined to a belt about 1.5 miles long and several hundred yards wide (see Map 15, locality 4). Black and gray *corundum* crystals enclosed in sillimanite schist can be found on the west side of a farm road 0.4 mile northeast of Carpenters Knob. The *corundum* is reported to occur as grayish-blue, tapered crystals (see Map 15, locality 5). The above localities were not field checked.

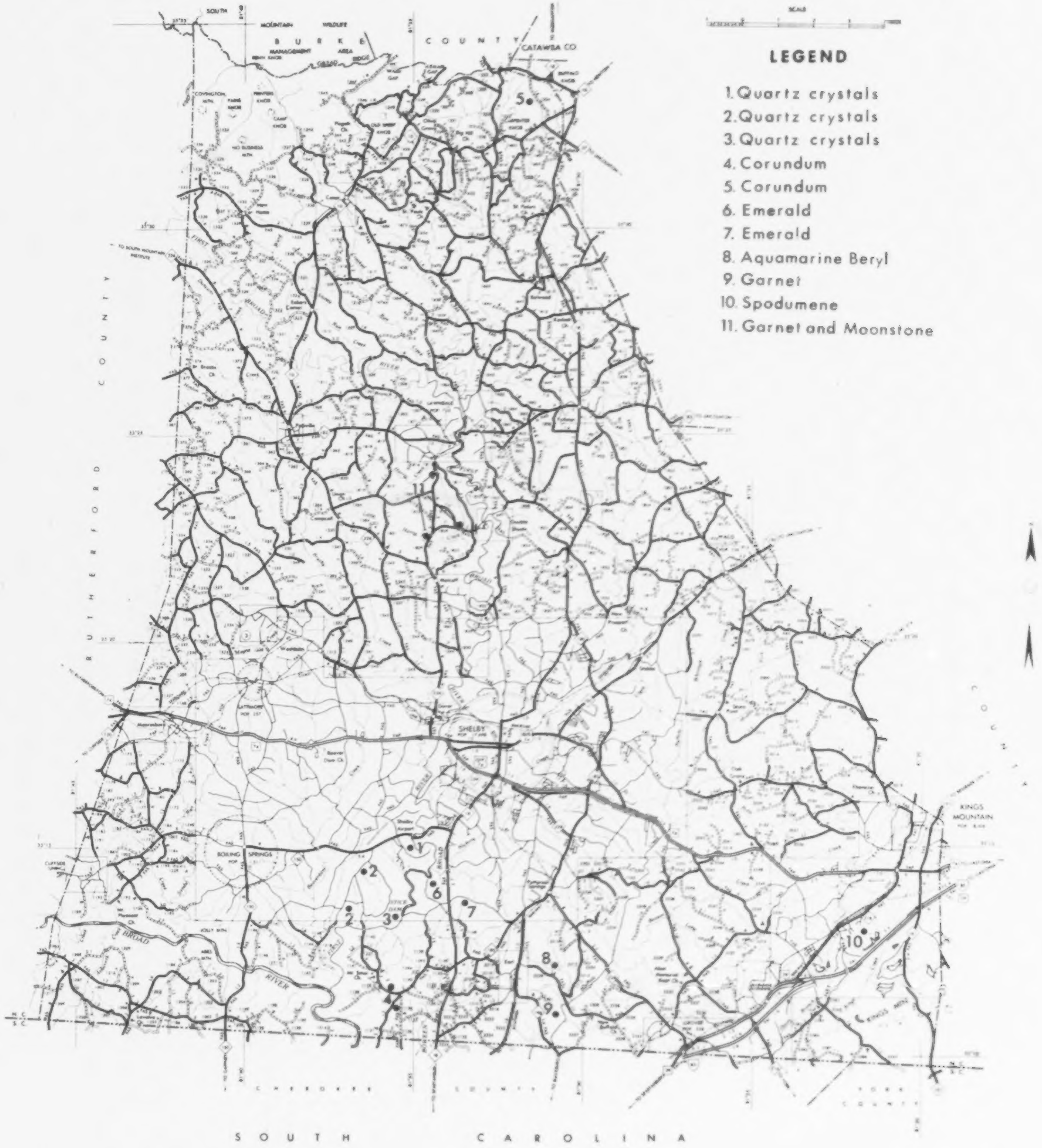
Beryl: Gem quality *beryl* is reported to occur (Keith and Sterrett, 1931, p. 12) in the region southwest of Shelby, and emerald green *beryl* has been reported from the Plantation Emerald mine and the Turner mine. The plantation mine is located six miles south of Shelby on a bend in the Broad River approximately one mile northeast of the Stice Dam (see Map 15, locality 6). The Turner mine is located 1.5 miles due east of the Stice Dam and 0.2 mile east of N.C. 18 (see Map 15, locality 7).

Aquamarine beryl occurs in pegmatite rock on a tributary of Buffalo Creek, 1.3 miles east of Earl (see Map 15, locality 8).

Garnet: *Garnet* can be found between Buffalo Creek and N.C. 198, 1.2 miles southeast of Earl (see Map 15, locality 9).

Spodumene: *Spodumene* and associated minerals occur in the Foote Mineral Company Spodumene Mine near Kings Mountain. The following minerals have been identified and can be found at this mine: *albite*, *microcline*,

MAP 15
CLEVELAND COUNTY


SCALE
LEGEND
1. Quartz crystals
2. Quartz crystals
3. Quartz crystals
4. Corundum
5. Corundum
6. Emerald
7. Emerald
8. Aquamarine Beryl
9. Garnet
10. Spodumene
11. Garnet and Moonstone
BURKE COUNTY
SOUTH MOUNTAIN WILDLIFE MANAGEMENT AREA
CATAWBA CO.
RUTHERFORD COUNTY
SHELBY
BOILING SPRINGS
KINGS MOUNTAIN
BROAD RIVER
CHEROKEE COUNTY
YORK COUNTY
SOUTH CAROLINA
1
2
2
3
4
5
6
7
8
9
10
11

eucryptite, bikitaite, prehnite, bavenite, spodumene, beryl, quartz, laumontite, holmquistite, apophyllite, chlorite, epidote, muscovite, biotite, tourmaline, cookeite, analcime, natrolite, axinite, bertrandite, bityite, fairfieldite, eosphorite roscherite, apatite, vivianite, switzerite, lithiophilite, graphite, diadochite, laueite, xanthroxenite, mitridatite, neomesselite, rhodochrosite, siderite, cassiterite, autunite, columbite, sphalerite, pyrite, marcasite, bornite, chalcopyrite, pyrrhotite, dolomite, calcite, fluorite, magnetite, wickmanite, petalite, zinnwaldite and eakerite. The mine may be reached by taking N.C. 216 from Kings Mountain toward Mt. Olive and Gibson to the junction of N.C. 216 and SR 2298. Turn left on SR 2298 and follow signs to Foote Mineral Company (see Map 15, locality 10). Note: Permission required to collect in mine.

Muscovite and Anatase Crystals: *Muscovite* crystals with small *anatase* crystals occur on the D. Yates Brooks property approximately 1.6 miles northwest of Lattimore in southwestern Cleveland County. The muscovite crystals were of excellent quality, but the locality has since been exhausted.

Almandine Garnet and Moonstone: Gem quality facet grade *almandine garnet* as well as high quality *moonstone* have been found in the alluvium of several creeks in west central Cleveland County (Lewis Ormand, Kings Mountain, Personal Communication). A few notable localities are as follows: the junction of Big Harris Creek and SR 1813 just south of Lawndale; the junction of Big Harris Creek and SR 1809 just west of Double Shoals; the junction of Little Harris Creek and SR 1809 (see Map 15, locality 11).

Davidson County

Gold, Silver and Copper: Davidson County contains several famous *gold,* *silver* and *copper* mines including Silver Hill, Silver Valley, the Emmons mine and Conrad Hill.

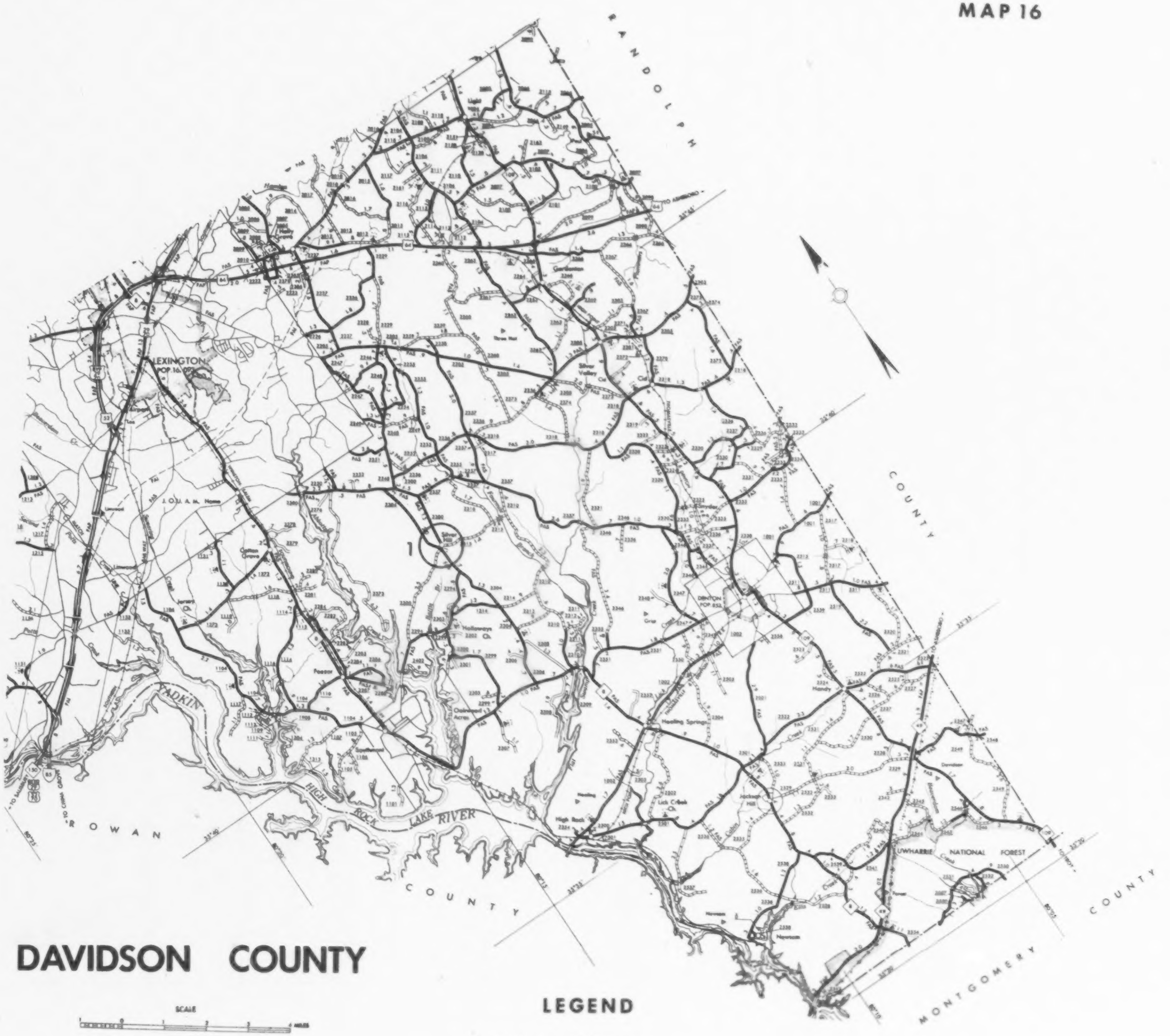
Silver Hill, located five miles southeast of Lexington on the east side of the Silver Hill Road, 0.5 mile north of the village of Silver Hill, has not been worked extensively since 1898. The mineral assemblage reported by Genth and Kerr (1885, p.106) is as follows: *native silver, argentite, argentiferous galena, sphalerite, chalcocite, melaconite, zoisite, orthoclase, calamine, pyromorphite,* green, yellow, brown, black and colorless *wavellite, stolzite, anglesite, grossularite, chalcanthite, calcite, cerussite, malachite and scheelite.*

The Silver Valley mine is situated six miles southeast of Lexington and occupies the western side of the Flat Swamp Creek valley (Pogue ,1910, p. 104) north-northwest of the Silver Valley crossroads. Genth and Kerr (1885, p. 106) record the following list of minerals which have been found at the mine: *galena, sphalerite and pyromorphite.* Pogue (1910, p. 106) adds to this list the minerals *chalcopyrite, pyrite* carrying *gold and silver.*

The Emmons mine lies twelve miles southeast of Lexington and about four miles north of Denton. The mine was worked primarily for *copper* and the chief ore mineral was *chalcopyrite.* The mine also produced *sphalerite and gold.* The gangue minerals were *pyrite, siderite, chlorite and calcite.*

The Conrad Hill mine, situated six miles east of Lexington, was worked for the ore minerals *chalcopyrite, auriferous pyrite and malachite.* The minerals were accompanied by a gangue of *limonite, specular hematite, siderite and chlorite* (Pogue, 1910, p. 112).

MAP 16


RANDOLPH
COUNTY
MONTGOMERY
COUNTY
ROWAN
COUNTY
LEXINGTON
DENTON
Silver Valley
Healing Springs
Holloways Ch.
YADKIN
HIGH ROCK LAKE
RIVER
UWHARRIE NATIONAL FOREST
1

DAVIDSON COUNTY

SCALE

LEGEND

1. Silver Hill area
   Gold, Silver and Copper

Davie County

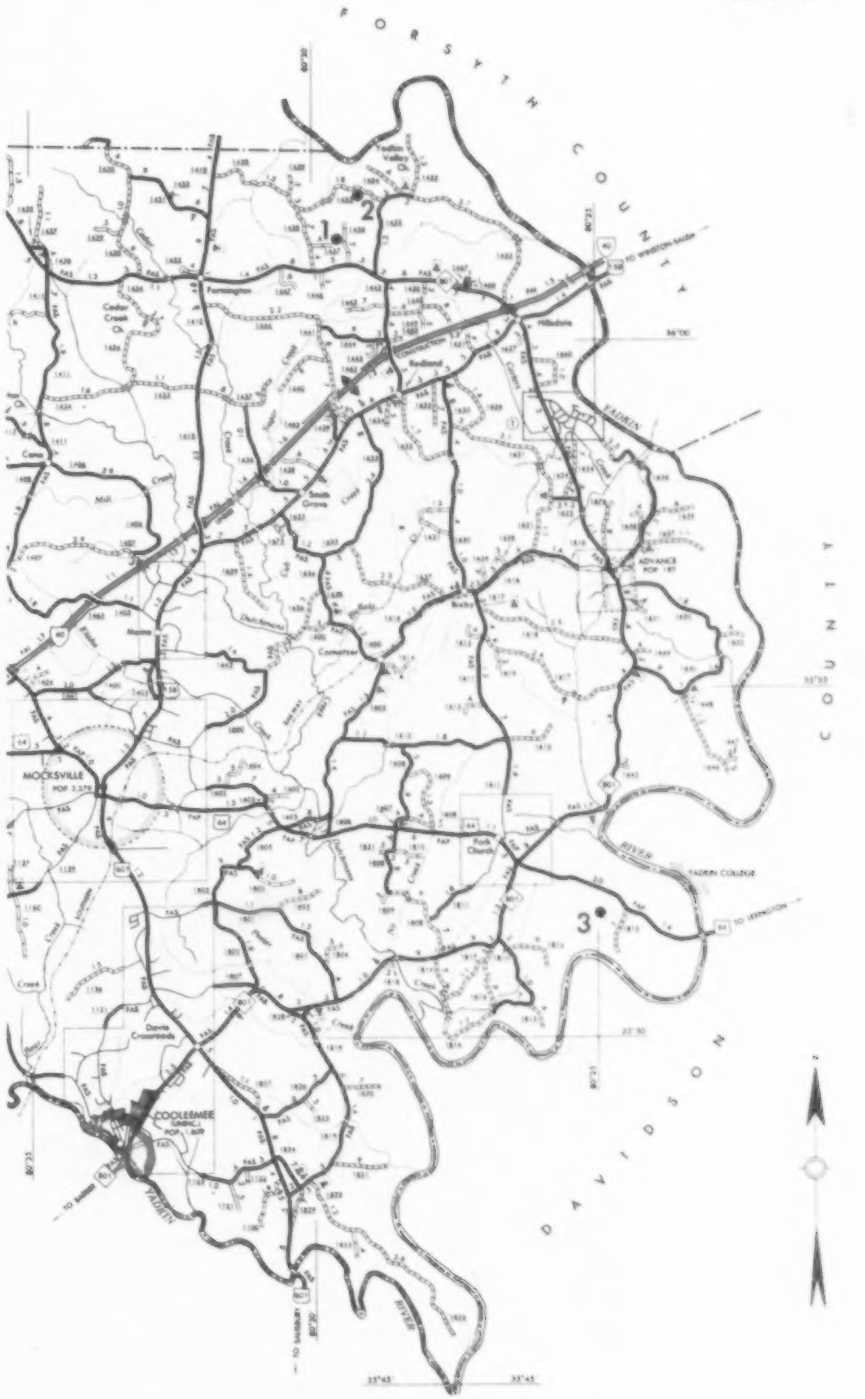
Columbite and Autunite: Three pegmatites which contain *columbite and autunite* are located in northeastern Davie County. Some of the *columbite* shows crystalline form. One of these localities can be reached by taking highway N.C. 801, east from Farmington for 2.0 miles and turning north on SR 1458 for 0.4 mile and then turning east on SR 1457 for 0.4 mile. The mine lies near the end of SR 1457. The second locality is reached by continuing down SR 1458 for an additional 0.8 mile and turning east on SR 1455, 1.4 miles to the second bridge. The deposit lies south of the bridge (see Map 17, locality 2).

Orbicular Diorite: *Orbicular diorite* occurs on the Cooleemee Plantation in southern Davie County. The rock was once used as an ornamental stone. The rock's appearance is that of a white rock with green marbles throughout. The orbicules are *hornblende* set in a groundmass of *albite*. Some of the orbicules contain *monazite* crystals up to 1/4" X 1/4". The locality may be reached by taking U.S. Highway 64 east from Fork for 2.4 miles and then taking a logging road south. The old quarry lies 300 yards southeast of U.S. 64 and 100 yards north of the old logging road (see Map 17, locality 3).

Durham County

Petrified Wood: *Petrified wood*, or wood replaced by *silica* is found in many places in the Triassic rocks of Durham County. It can be found in the area one mile north of Weaver, along the Eno River. It also occurs west of the juncion of highways U.S. 75 and N.C. 98, on the west side

MAP 17


FORSYTH COUNTY
DAVIDSON COUNTY
MOCKSVILLE POP. 3,379
COOLEEMEE
ADVANCE
Farmington
Cedar Creek Ch.
Redland
Hillsdale
Fork Church
Davie Crossroads
YADKIN COLLEGE
YADKIN RIVER
Smith Grove
Cornatzer
1
2
3
TO WINSTON-SALEM
TO LEXINGTON
TO SALISBURY
SCALE

DAVIE COUNTY

LEGEND

1. Columbite and Autunite
2 Columbite and Autunite
3. Orbicular diorite

of Durham. It is found in the southern part of the county at Bethesda, just west of highway U.S. 70 and two miles northeast of Bethesda, on the Ferrell Farm (Mr. L.A. Allison, Durham, and Mr. J.A. Price, Durham, Personal Communication).

Franklin County

Amethyst: *Amethyst* occurs on the property of Hollis Taylor, 0.3 mile east of the Centerville crossroads on N.C. 561. Gem quality amethyst has been found on this property (see Map 18, locality 1).

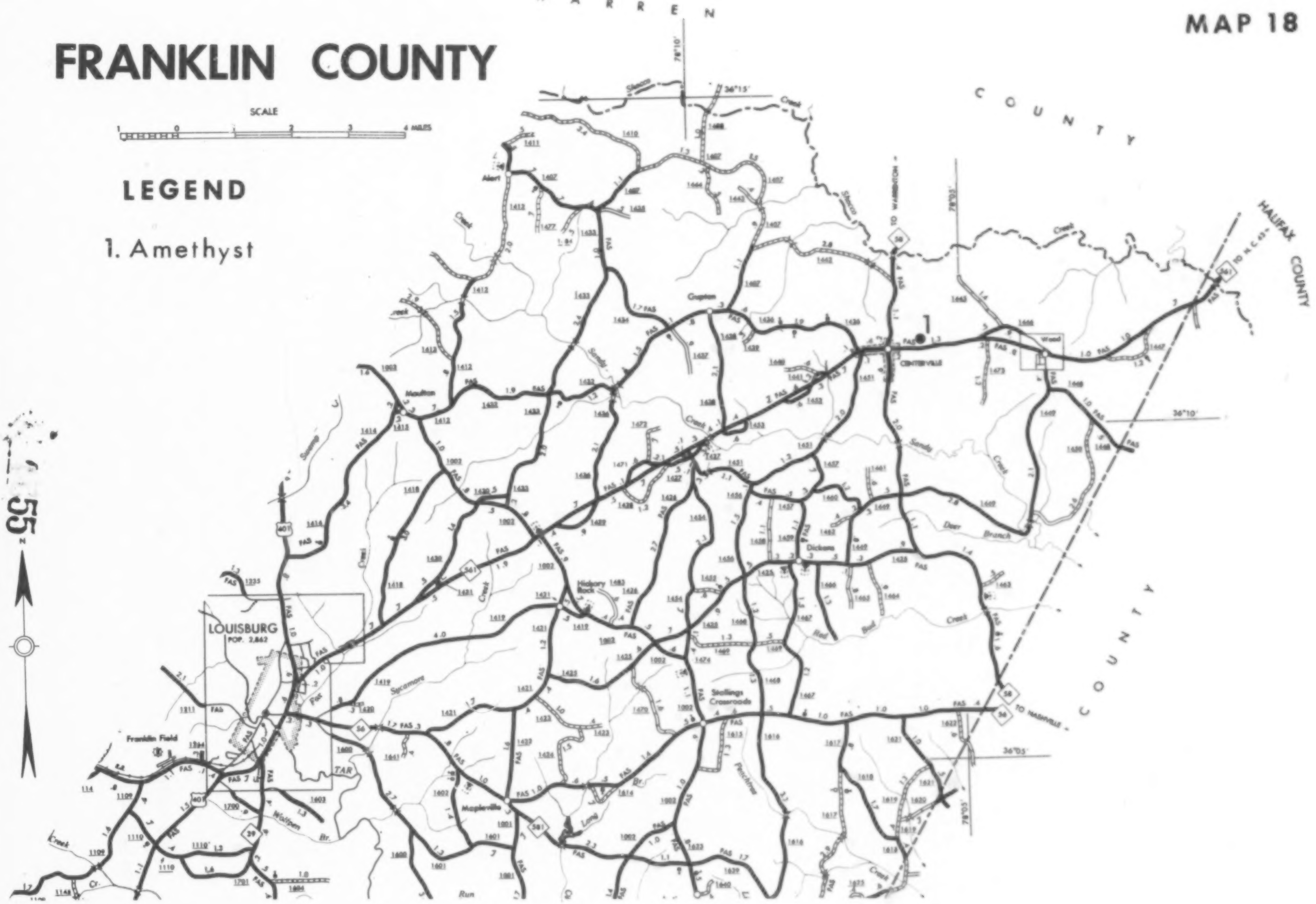
Gaston County

Cassiterite and Spodumene: The tin-spodumene belt (Broadhurst, 1956) extends through Gaston County. There are many pegmatites carrying *cassiterite and spodumene* within this belt; a few of the more notable ones are mentioned here: (1) the southeast corner of the intersection of SR 1401 and 1402, 1.5 miles west of Bessemer city (see Map 19, locality 1) - *cassiterite, feldspar, mica, garnet, beryl* and also reported *spodumene and apatite;* (2) between the Little Beaverdam Creek and the Beaverdam Creek on SR 1624 in a road cut on top of a hill between the two creeks (see Map 19, locality 2) - *cassiterite, mica, feldspar, garnet* and also reported *spodumene;* (3) in exposed cuts at the junction of Beaverdam Creek and SR 1620 (see Map 19, locality 3)- *cassiterite, mica and feldspar.*

Kyanite, Tourmaline and Rutile: Kyanite, tourmaline and rutile occur in a roadcut on SR 1820 just west of the intersection of SR 1820 and SR 1902, 2.2 miles east of Alexis (see Map 19, locality 4). *Lazulite* is also reported from this locality.

FRANKLIN COUNTY

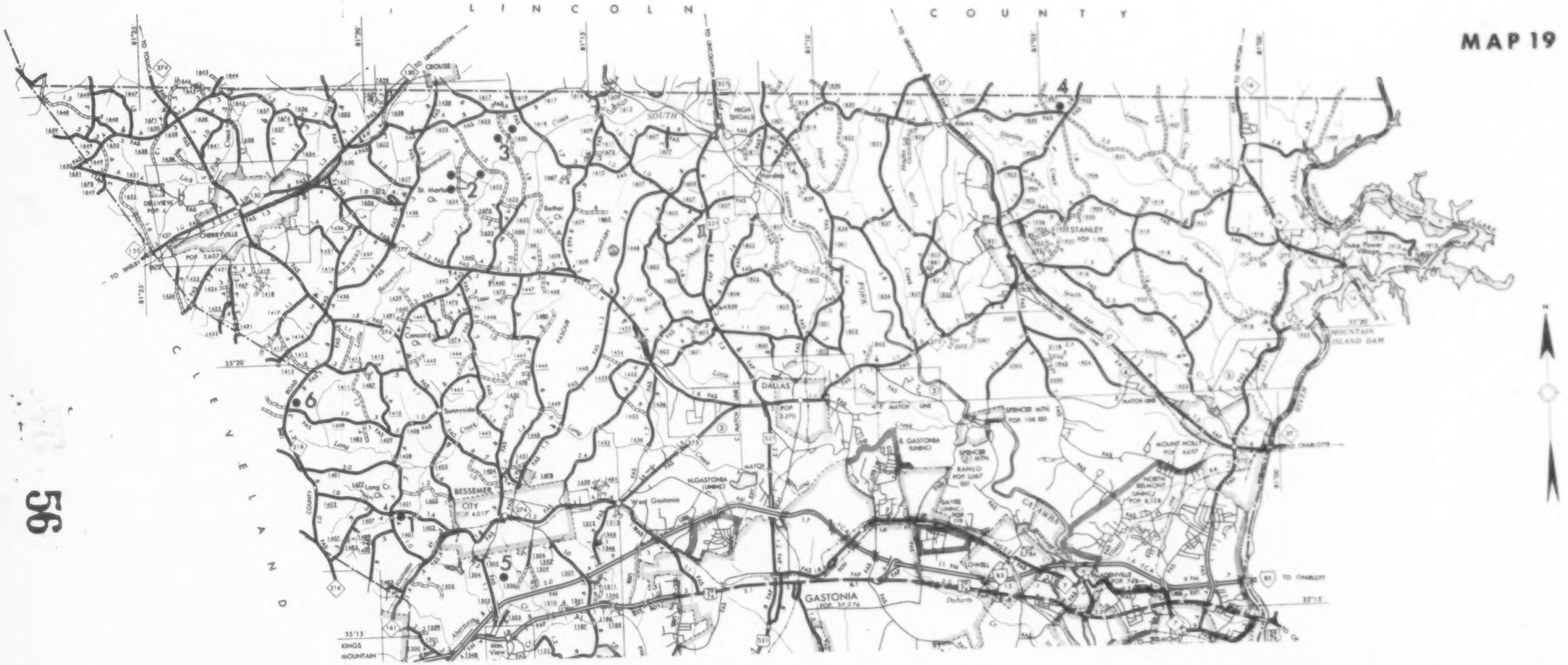
MAP 18


SCALE
1 0 1 2 3 4 MILES
W A R R E N
C O U N T Y
HALIFAX COUNTY
C O U N T Y
TO WARRENTON
TO N.C. 43
TO NASHVILLE
78°10'
78°05'
36°15'
36°10'
36°05'
Alert
Moulton
Gupton
CENTERVILLE
Wood
Dickens
Hickory Rock
Stallings Crossroads
Mapleville
LOUISBURG
POP. 2,862
Franklin Field
TAR
Sandy
Creek
Deer Branch
Red Bud
Sycamore
Peachtree
Long Br.
Wallpen Br.
Cr.
Run
Shocco
Swamp
56
58
39
401
561
FAS
1

LEGEND

1. Amethyst

MAP 19


L I N C O L N   C O U N T Y
C L E V E L A N D
COUNTY
SOUTH
FORK
STANLEY
CHERRYVILLE
DELLVIEW
DALLAS
GASTONIA
BESSEMER CITY
CRAMERTON
LOWELL
MOUNT HOLLY
SPENCER MTN.
HIGH SHOALS
KINGS MOUNTAIN
CATAWBA
MOUNTAIN ISLAND DAM
TO CHARLOTTE
TO LINCOLNTON
TO SHELBY
1
2
3
4
5
6

GASTON COUNTY

SCALE

LEGEND

1. Cassiterite and Spodumene
2. Cassiterite
3. Cassiterite
4. Kyanite, Tourmaline and Rutile
5. Goethite
6. Uraninite and Garnet

Goethite: *Goethite* is reported to occur 0.8 mile due south of the center of Bessemer City in the area known as the Devil's Workshop (see Map 19, locality 5). This locality has not been field checked.

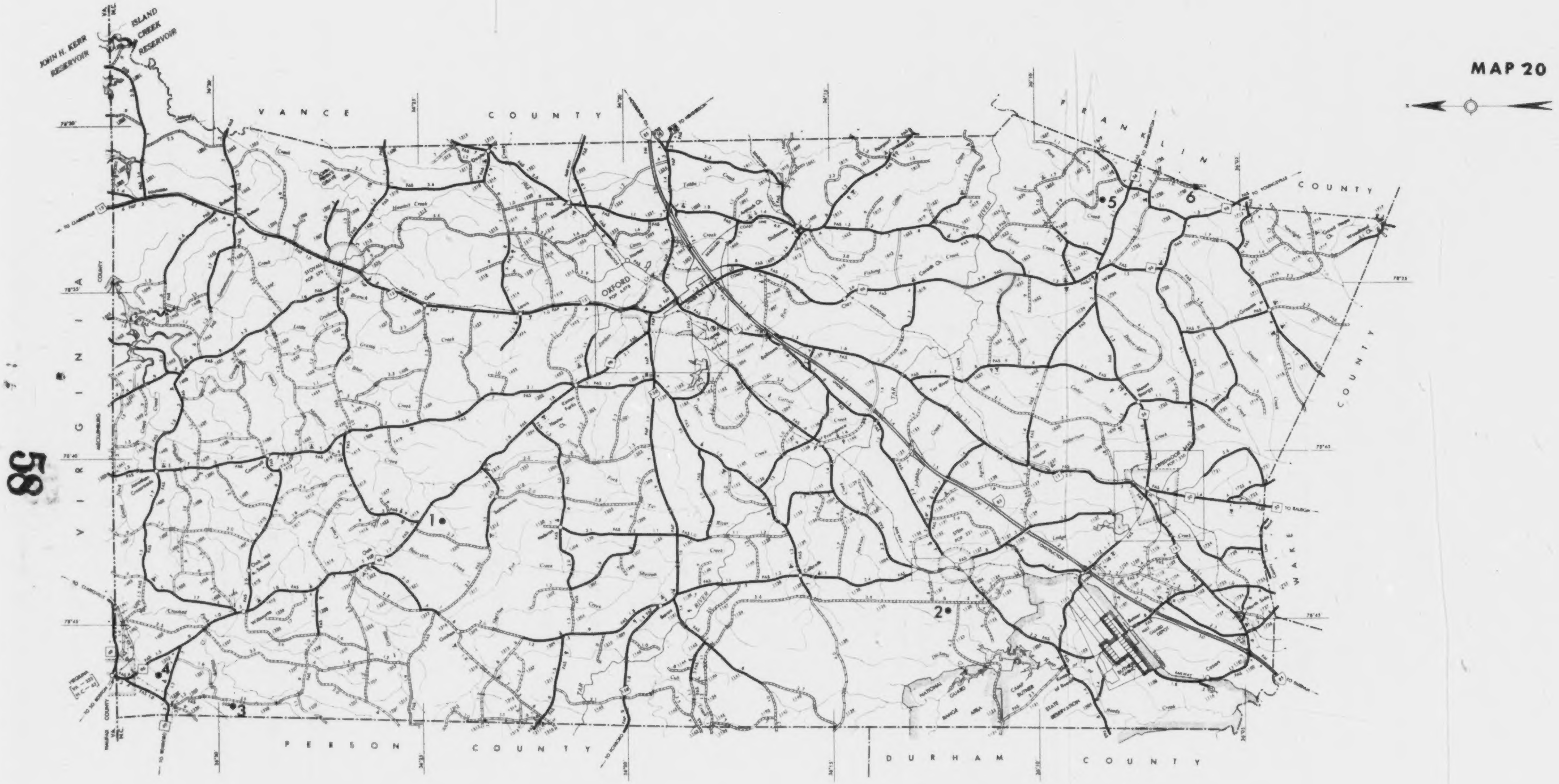
Uraninite and Garnet: Pegmatites carrying *uraninite, garnet, mica and feldspar* are exposed on N.C. 216 just north of the intersection of N.C. 216 and SR 1409 (see Map 19, locality 6). *Beryl* was reported in the general vicinity of this location at the Bess mine.

Granville County

Pyrophyllite: *Pyrophyllite* occurs in Granville County 1.5 miles south of Oak Hill and also 3.0 miles southeast of Oak Hill on Mountain Creek (see Map 20, locality 1). *Pyrophyllite* is found on the crest and the northeastern slope of Bowling's Mountain, 2.7 miles west of Stem and approximately 5.0 miles northwest of Butner (see Map 20, locality 2). The minerals found in this deposit are massive and radiating *pyrophyllite*, massive *topaz, chert, andalusite, diaspore, malachite, ilmenite, hematite and sericite.* Other deposits occur in the area of Long Mountain,north of Bowling's Mountain.

Copper: Several abandoned copper mines and prospect pits are located in northwestern Granville County, including the Holloway mine and the Blue Wing mine. The Holloway mine, located two miles south and one mile west of Virgilina (see Map 20, locality 3) was first opened in 1885, and operated intermittently until the early 1900's. The ore minerals of this mine were *chalcocite, bornite, malachite, azurite, argentite, cuprite, native copper and native silver.* The ore was accompanied by a gangue of *quartz, epidote, chlorite, hematite* and pink *orthoclase* (Laney, 1917, pp. 114-121).

MAP 20


VANCE COUNTY
FRANKLIN COUNTY
WAKE COUNTY
DURHAM COUNTY
PERSON COUNTY
VIRGINIA
JOHN H. KERR RESERVOIR
ISLAND CREEK RESERVOIR
OXFORD
TAR RIVER
TO RALEIGH
1
2
3
4
5
6

LEGEND

1. Pyrophyllite
2. Pyrophyllite, Topaz, Chert, etc.
3. Copper minerals
4. Copper minerals
5. Molybdenite
6. Lepidolite

GRANVILLE COUNTY

SCALE

The Blue Wing mine is located 1.5 miles south of Virgilina and lies several hundred yards north of Blue Wing Church (see Map 20, locality 4). This mine was also operated during the latter part of the nineteenth and early twentieth centuries. The ore minerals of the mine were *bornite*, *chalcocite*, *azurite*, *malachite* and *argentite*. They were accompanied by a gangue consisting of *quartz*, *calcite*, *chlorite*, *epidote* and *hematite* (Laney, 1917, pp. 102-114).

A copper prospect containing *malachite* and *specularite* lies across the road from the Blue Wing Church and almost due south of the Blue Wing mine.

Molybdenite: *Molybdenite* filling fractures in granite can be found in an abandoned state highway quarry two miles east of Wilton. This quarry can be reached by taking highway N.C. 56 east out of Wilton for 2.6 miles, turning north on SR 1625 for 0.4 mile to a bifurcation and taking the west fork, SR 1629, of the road for 0.9 mile. The quarry site is located on the southwest side of this road (see Map 20, locality 5).

Lepidolite: *Lepidolite* float occurs in a field owned by Mr. C.V. Evans, two miles north of Pocomoke on the Granville-Franklin County line, just inside Granville County (see Map 20, locality 6). Very minute crystals of *rubellite* are also found at this locality.

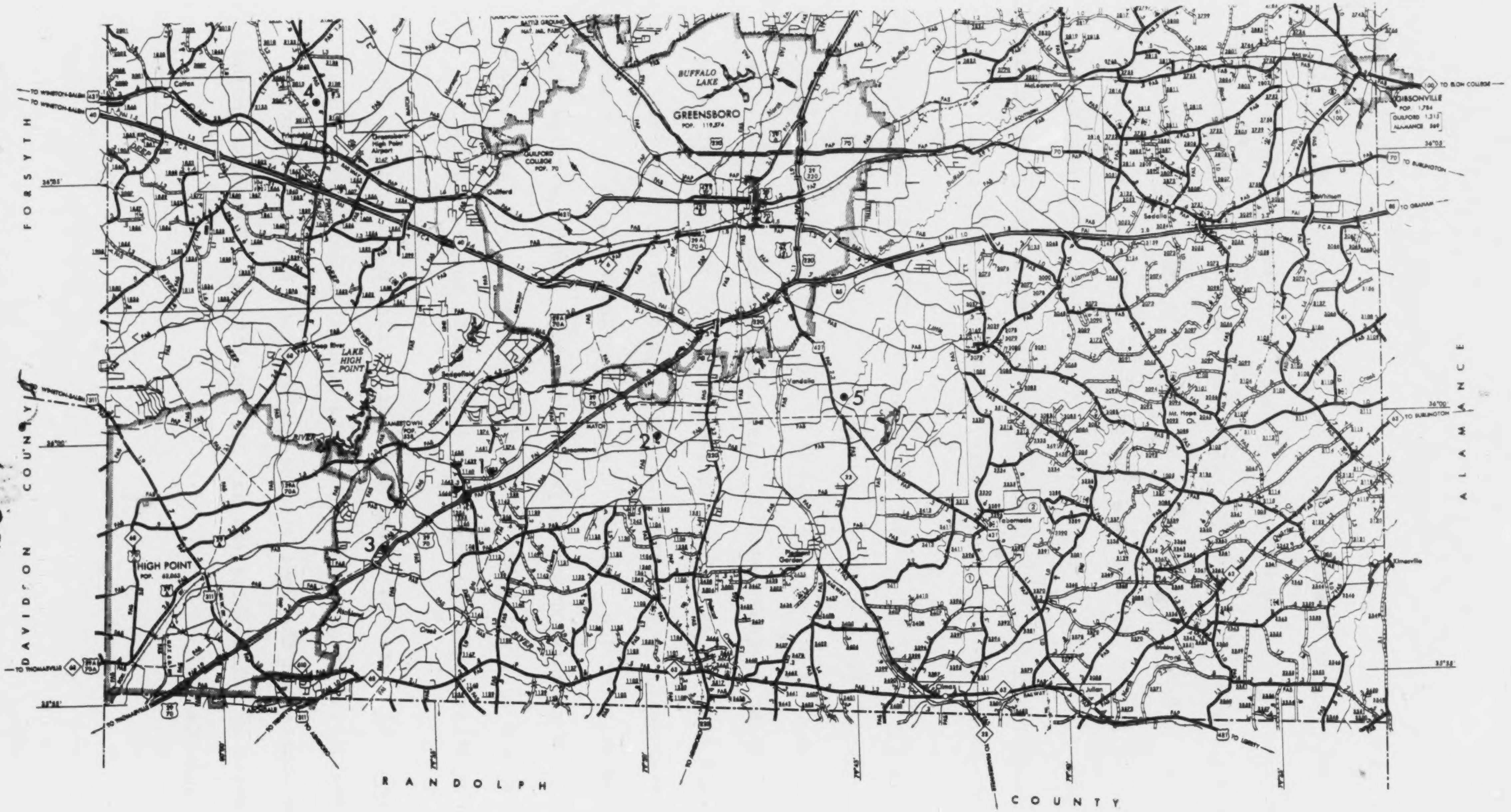
Guilford County

Gold and Copper: Guilford County contains several abandoned gold mines which have produced a variety of minerals. The Gardner Hill mine, located eight miles southwest of Greensboro (see Map 21, locality 1), was worked for *gold*, *bornite*, *chalcopyrite*, *chrysocolla and malachite* (Genth and Kerr, 1885, p. 109). The Fisher Hill mine, located five miles southwest of Greensboro (see Map 21, locality 2),contained the minerals *gold, pyrite, chalcopyrite, magnetite, hematite, ilmenite, limonite, pseudomalachite* and *siderite* (Genth and Kerr, 1885, p. 109). The McCullough (North State) mine, located two and one-fourth miles south of Jamestown, on the north side of highway U.S. 29, 0.5 mile northeast of Kivett Drive (see Map 21, locality 3),produced the following minerals: *native copper, cuprite* in acicular crystals, *pyrite, chalcopyrite, siderite* and *malachite.*

Sagenite: *Asbestos* inclusions in green *quartz* have been found near Gibsonville (Kunz, 1907, p. 34). Dr. Kunz (1885, p. 725) states that a green stone found by Mr. James M. Smith of Gibsonville was pronounced by a local expert to be a genuine *emerald* containing several *diamonds*. The stone weighed nine ounces and was valued at several thousands of dollars. The owner supposedly refused one-thousand dollars for it. Mr. Smith, not trusting the mail service, carried the stone to New York, where it was identified as a greenish *quartz* crystal containing liquid cavities that glistened in the sun, which led to the *diamond* theory. As five dollars was the best offer made, the stone was returned to North Carolina.

Iron: Iron ores have been mined at several places in Guilford County. One of the larger deposits is the Tuscarora iron mine. This deposit is located on the west side of highway N.C. 68, approximately one mile north of Friendship (see Map 21, locality 4). The ores include *magnetite* and *ilmenite*.

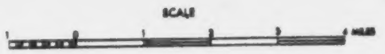
MAP 21


GREENSBORO
POP. 119,574
BUFFALO LAKE
HIGH POINT
POP. 62,063
LAKE HIGH POINT
GUILFORD COLLEGE
GIBSONVILLE
Greensboro High Point Airport
Vandalia
Jamestown
1
2
3
4
5
FORSYTH
DAVIDSON COUNTY
RANDOLPH COUNTY
ALAMANCE
TO WINSTON-SALEM
TO THOMASVILLE
TO ELON COLLEGE
TO BURLINGTON
TO GRAHAM
TO LIBERTY

LEGEND

1. Gardner Hill mine
2. Fisher Hill mine
3. McCullough mine
4. Iron
5. Hornblende

GUILFORD COUNTY


SCALE
MILES

Hornblende : *Hornblende* and radiating *hornblende* crystals occur in the Buchanan Quarry of Central Rock Company on SR 3317, just off U.S. 421 south of Greensboro. The locality may be reached by taking U.S. 421 south from Greensboro City Limits for 1.4 miles and turning left on SR 3317 and travelling for 0.40 mile. The quarry lies on the left (see Map 21, locality 5).

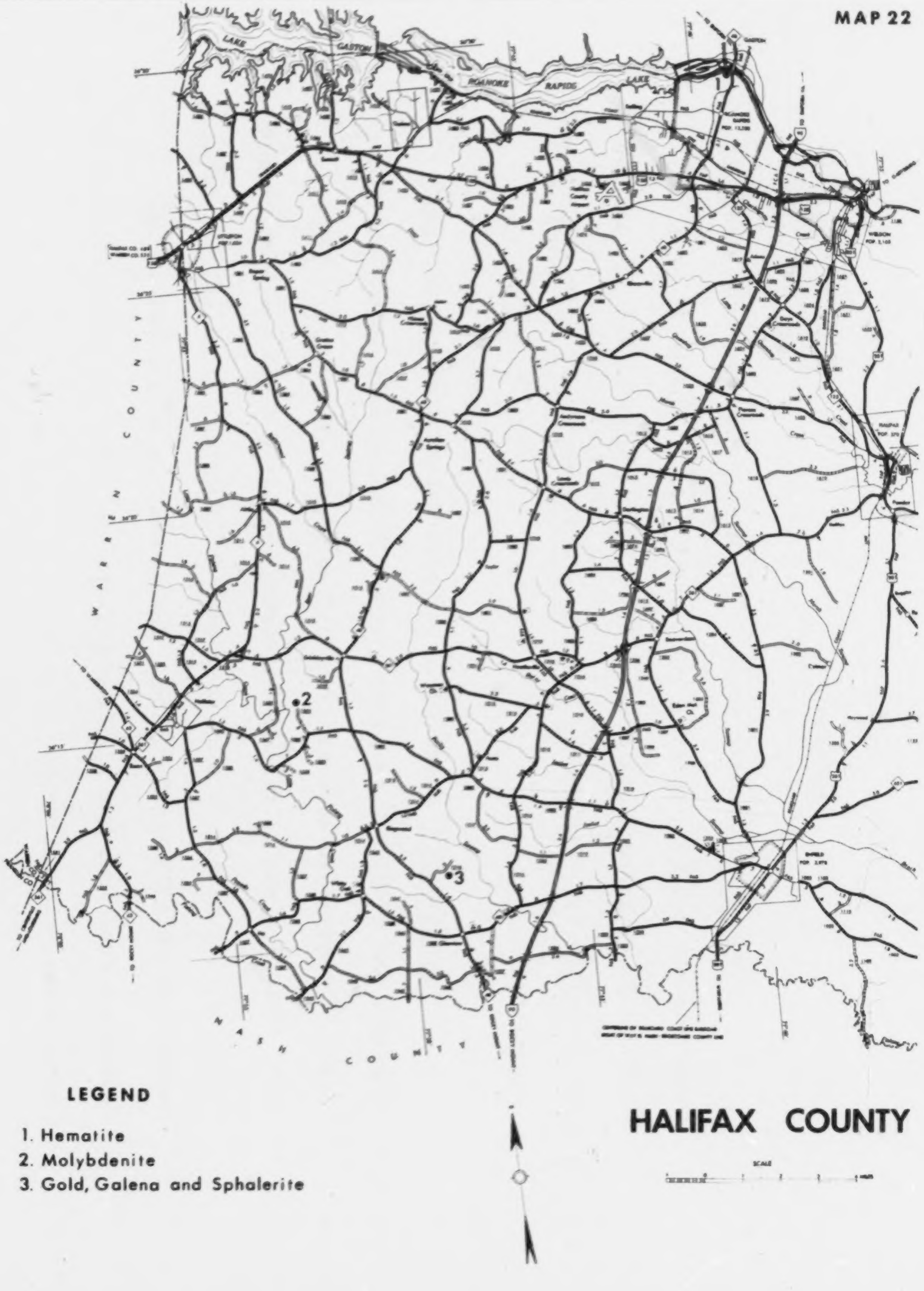
Halifax County

Hematite: *Specular hematite* occurs in the Gaston Ore Banks in northwestern Halifax County. The deposit lies on the south side of Roanoke River approximately two miles north of Roanoke Rapids (see Map 22, locality 1). The ore is granular for the most part and contains some *magnetite*.

Molybdenite: *Molybdenite*, in association with *pyrite*, *chalcopyrite and sericite*, is found south of Brinkleyville on the Boy Scout-Jones properties in southwestern Halifax County (Broadhurst, 1955, p. 23). The area can be reached by taking highway N.C. 48 south of Brinkleyville for 2.0 miles, turning west onto SR 1002 for 1.1 miles, and turning north onto SR 1323 for 0.8 mile. The deposit is at the end of this secondary road (see Map 22, locality 2). It occurs in veins enclosed by schists and volcanic rocks.

Gold, Lead and Zinc: *Gold, lead and zinc* ores were worked at the H. and H. mine on the House property, which lies north of N.C. 48 between Ringwood and Glenview, 1.7 miles northwest of Glenview (see Map 22, locality 3).

MAP 22


LAKE GASTON
ROANOKE RAPIDS LAKE
WARREN COUNTY
NASH COUNTY
WELDON
HALIFAX
ENFIELD
LITTLETON
2
3
SCALE

HALIFAX COUNTY

LEGEND

1. Hematite
2. Molybdenite
3. Gold, Galena and Sphalerite

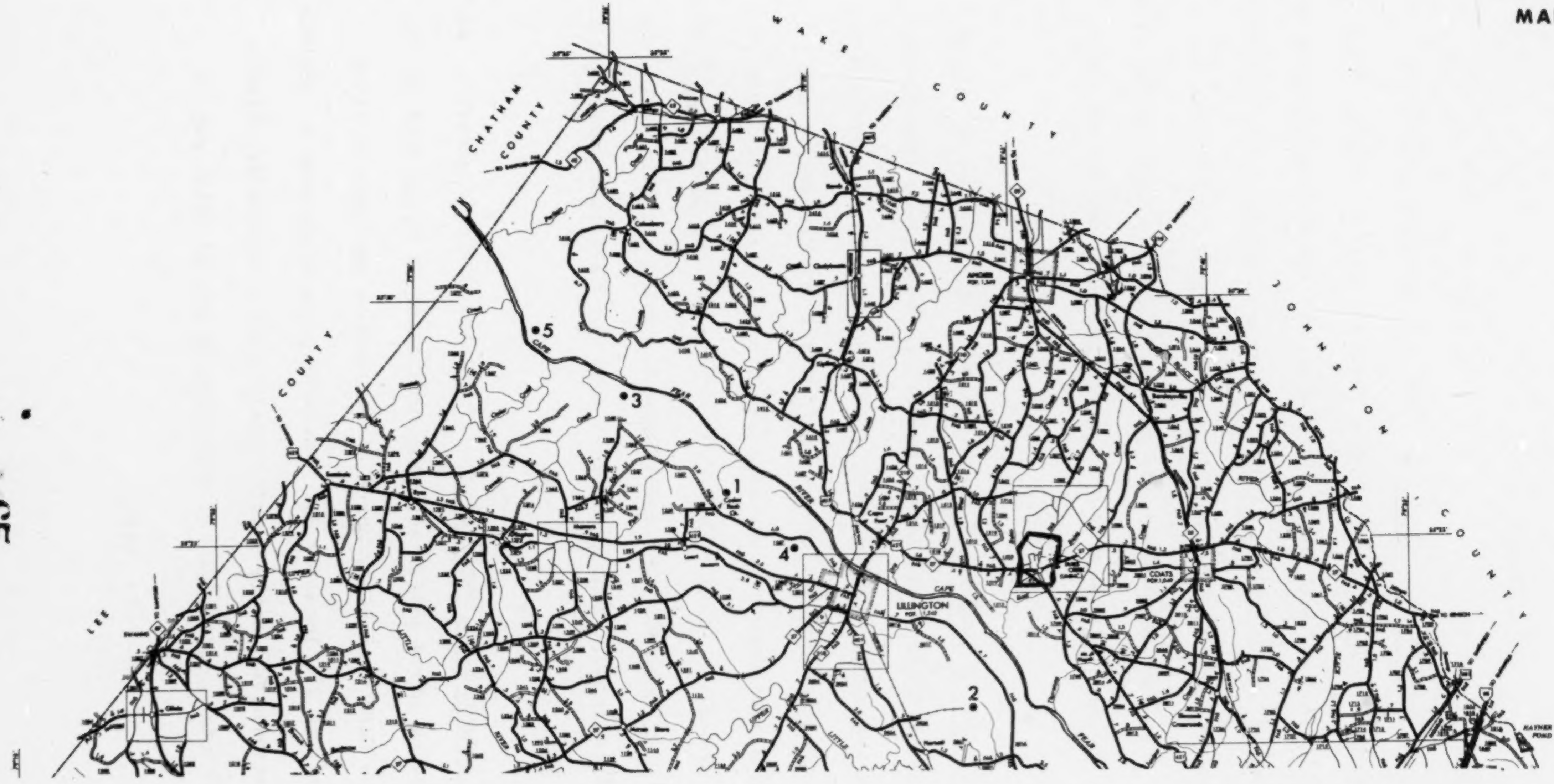
Harnett County

Hematite, Limonite and Marcasite : The iron minerals, *hematite, limonite and marcasite* occur in the Becker Sand and Gravel Company quarries north of Lillington, just off of U.S. 421, and south of Lillington on N.C. 401 (see Map 23, localities 1 and 2). The iron oxides occur as beds between the sand and gravel beds and the clays. Some of the oxides are botryoidal and show good mammillary structures. The *marcasite* occurs as nodules or in crystals and crystalline masses as gross replacements of *petrified wood.*

Agate, Petrified Wood and Jasper: *Agate, petrified wood, jasper, agatized wood, moss agate, chalcedony, buhrstone* (silicified limestone), frosted *quartz* crystals, *milky quartz, smoky and rose quartz, petrified palm root*, and the (Cretaceous) tree-fern *tempskya* are present in the Becker Sand and Gravel Company quarries (see Map 23, localities 1 and 2). In addition to the above, *gold, ilmenite, rutile, zircon, garnet and monazite* occur as heavy minerals that can be easily panned out at each of the Becker quarry localities. Many collectors have cut beautiful cabochons from the *petrified palm.*

Rutile, Ilmenite and Microcline : Rutilated *ilmenite* occurs in small pegmatites carrying *smoky quartz* and pink *microcline* at Raven Rock on the left bank of the Cape Fear River north of Lillington and east of Raven Rock Church (see Map 23, locality 3). Raven Rock is an outcrop of schists and gneisses composed of *milky quartz, smoky quartz, mucsovite, biotite, microcline, orthoclase, sericite and chalcopyrite* all of which may be

MAP 23


WAKE COUNTY
JOHNSTON COUNTY
CHATHAM COUNTY
LEE COUNTY
LILLINGTON
COATS
ANGIER
CAPE FEAR RIVER
LITTLE RIVER
RAYNER POND
1
2
3
4
5

LEGEND

1. Iron minerals, Agate, Petrified wood, etc.
2. Iron minerals, Agate, Petrified wood, etc.
3. Rutile and Ilmenite
4. Chalcopyrite, Pyrite and Quartz crystals
5. Magnetite and Garnet

HARNETT COUNTY

collected at this locality. The locality may be reached by taking U.S. 421 north from Lillington for approximately 7 miles and turning right on the Raven Rock Church road, SR 1250, and following this road to the river.

Chalcopyrite, Pyrite and Quartz Crystals: *Chalcopyrite, pyrite, siderite, rutile and milky quartz* crystals occur in the old Carolite quarry just north of the Lillington town limits (see Map 23, locality 4). The *quartz* crystals occur in small quartz dikes cutting the phyllite. The *chalcopyrite* occurs as coatings and sprays on the cleavage faces of the phyllite. Some small *chalcopyrite* crystals were found here by the authors. The *pyrite* occurs disseminated in the phyllites and as crystals in the quartz dikes. *Fluorite* has been reported associated with the quartz dikes but only one small specimen was found by the authors.

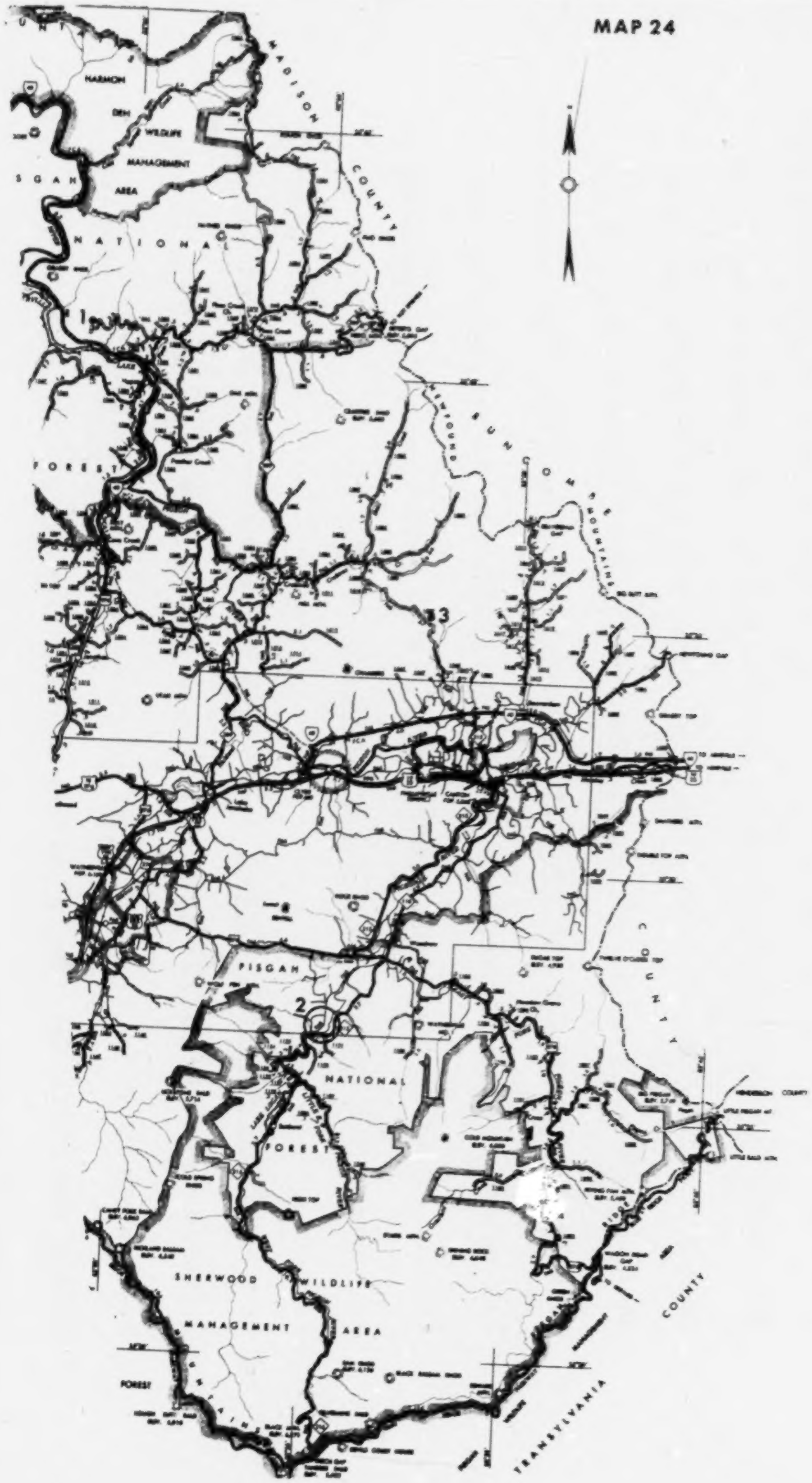
Magnetite and Garnet: *Magnetite and garnet* occur in northern Harnett County at the old Battle's mine on the right bank of the Cape Fear River, 3 miles south of Buckhorn Dam and north of Kipling (see Map 23, locality 5). During the Civil War, the mine was operated for *magnetite* which was barged and hauled upstream to where it was smelted at the Endor Iron Furnace on Deep River in Lee County. Several tons of this ore are still piled beside the furnace. The *magnetite* occurs in crystalline masses with some *almandine garnet*. It readily attracts a magnet and some of it is lodestone.

Haywood County

Copper: Several copper prospects are located in Haywood County. One of the most extensive of these is the Redmond mine, located 0.4 mile north of the soutnern end of Waterville Lake (see Map 24, locality 1).

HAYWOOD COUNTY

MAP 24


SCALE
MADISON COUNTY
HARMON DEN WILDLIFE MANAGEMENT AREA
PISGAH NATIONAL FOREST
NEWFOUND
BUNCOMBE
MOUNTAINS
COUNTY
HENDERSON COUNTY
TRANSYLVANIA COUNTY
SHERWOOD WILDLIFE MANAGEMENT AREA
1
2
3

LEGEND

1. Copper
2. Corundum
3. Corundum

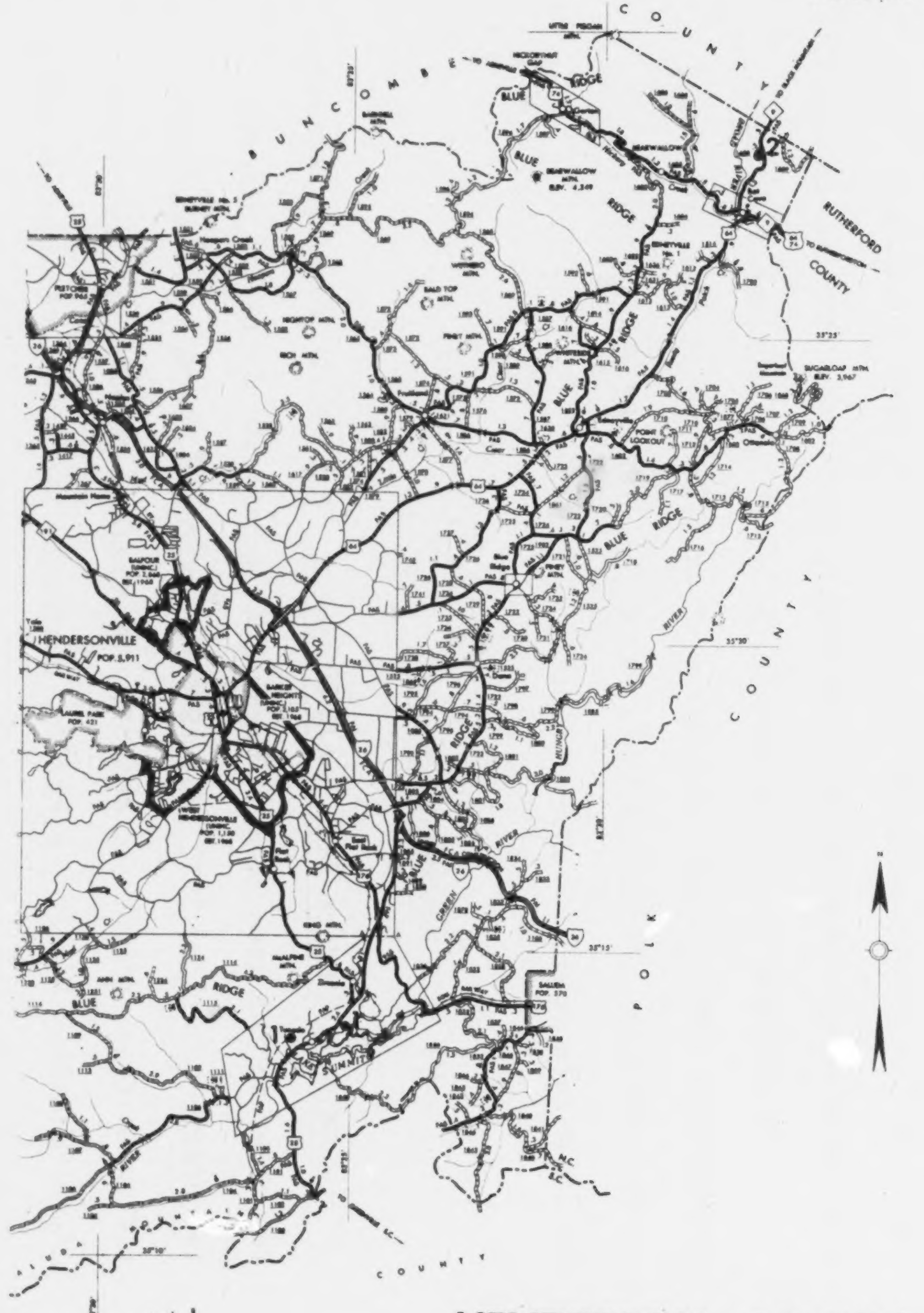
The ores of this mine include *arsenopyrite, pyrite and chalcopyrite*, as well as some lead and zinc ores.

Corundum: Although there are several *corundum* localities in Haywood County, probably the two most interesting localities are the Edmondson property and the Presley mine. The J.H. Edmondson property at Retreat, on the Pigeon River, six miles southeast of Waynesville (see Map 24, locality 2),contains small pegmatites accompanied by *vermiculite* carrying *corundum* associated with *kyanite and garnet*. The Presley mine, located four miles northwest of Canton (see Map 24, locality 3), is situated in pegmatite material which cuts through dark green amphibolite country rock. Specimens of excellent color have been found at this locality (Pratt and Lewis, 1905, pp. 188-189 and p. 257). *Corundum* also occurs on Shovel Creek.

Henderson County

Zircon and Other Rare Earth Minerals: Rare earth bearing pegmatites occur in the area around Tuxedo and contain the following minerals (according to Olson, 1952, pp. 18-20): *anatase, sphene, zircon, auerlite, xenotime, polycrase, apatite, serpentine, epidote, garnet, microcline, quartz, allanite, monazite, cyrtolite, stilbite, vermiculite and muscovite*. These minerals occur collectively at the following localities: the Freeman mine, 0.5 mile northeast of Tuxedo on SR 1118; the Jones mine, 0.5 mile east of Tuxedo on SR 1856; the Pace mine, 1.8 miles southwest of Tuxedo; on the Price farm, 3 miles southwest of the Freeman mine; and the Davis farm, 4 miles from the Green River Post Office on the road

MAP 25


BUNCOMBE COUNTY
RUTHERFORD COUNTY
POLK COUNTY
GREENVILLE COUNTY
HENDERSONVILLE
POP. 5,911
BLUE RIDGE
GREEN RIVER
SALUDA
NC
SC
1
2

HENDERSON COUNTY

SCALE

LEGEND

1. Zircon
2. Epidote

to Greenville by way of Poinsett Springs. The Jones mine was found by the writers to be more abundant in *zircon* than the other mentioned localities. The Tuxedo localities are given as locality 1 on the Henderson County locality map.

Epidote: *Epidote* veins occur in gneiss in the west bank of N.C. 9, 0.8 mile north of Bat Cave. *Epidote* also occurs disseminated through pink granite in a deep road cut on N.C. 9, 0.4 mile north of the above locality (see Map 25, locality 2).

Iredell County

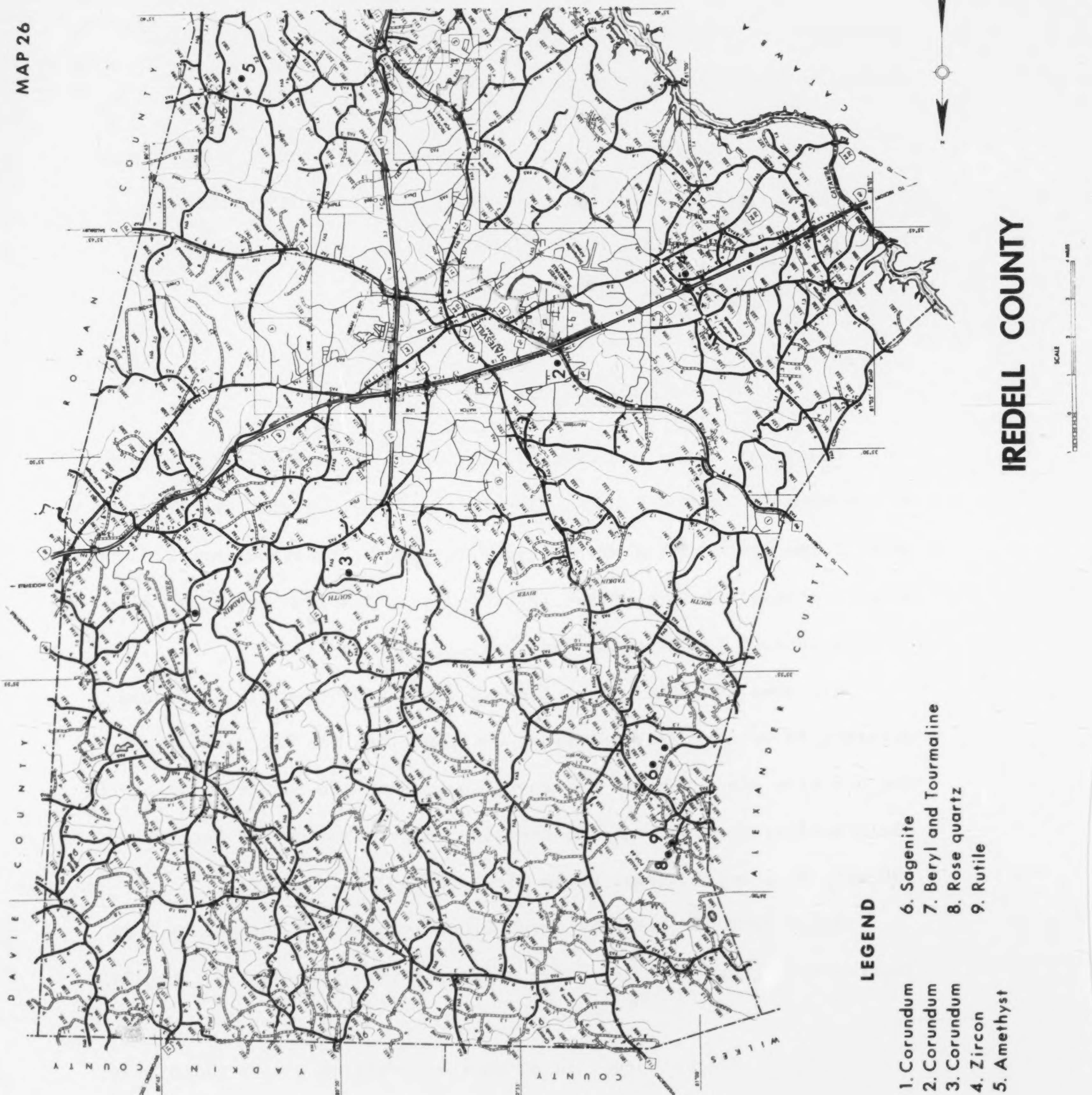
Corundum: Pratt and Lewis (1905, p. 2) located eight occurrences of corundum in Iredell County. The Belts Bridge deposit, on the south bank of the South Yadkin River, 4.8 miles south of Harmony and 2.8 miles southeast of Turnersburg, contains gray *corundum* crystals, many of them encased in *margarite* (see Map 26, locality 1).

The Acme (Collins) mine, located west of Statesville, produced abrasive as well as gray astirated *corundum* (see Map 26, locality 2). The old mine dumps are now destroyed because of the construction of the Klein Outdoor Theater over the deposit. Some *corundum* has been found recently in a small stream which flows behind the theater.

Rough *corundum* crystals occur 0.6 mile north of the Prison Camp located on highway U.S. 21, north of Statesville (see Map 26, locality 3).

Zircon: *Zircon* occurs in an area approximately five miles west of Statesville in the vicinity of the old Statesville airport (see Map 26,

MAP 26


D A V I E   C O U N T Y
R O W A N   C O U N T Y
Y A D K I N   C O U N T Y
W I L K E S
A L E X A N D E R   C O U N T Y
C A T A W B A
STATESVILLE
SOUTH
YADKIN
RIVER
SCALE
MILES

IREDELL COUNTY

LEGEND

1. Corundum
2. Corundum
3. Corundum
4. Zircon
5. Amethyst
6. Sagenite
7. Beryl and Tourmaline
8. Rose quartz
9. Rutile

locality 4).

Amethyst: *Amethyst* was mined by a gemstone company, 0.8 mile west-southwest of Amity Hill. The amethyst-bearing quartz veins occur on the Minor Lentz farm and the A.E. Brown property (see Map 26, locality 5).

Sagenite: Mud and water inclusions in *quartz* crystals are found on the Campbell, Shoemaker and Burton farms which lie west and southwest of Rhyne's store, on highway N.C. 115, 14 miles northwest of Statesville (see Map 26, locality 6).

Beryl and Tourmaline: Green and golden *beryl* and black *tourmaline* are found on the Campbell farm in the area north of Snow Creek (see Map 26, locality 7). *Smoky quartz* crystals occur as float one mile north of Snow Creek (Mr. William Campbell, Statesville, Personal Communication).

Rose Quartz: Massive dark *rose quartz* has been found approximately 0.4 mile north of Rhyne's Store on the property of Mr. John Duncan, on Fox Mountain near the southern edge of Love Valley (Mr. W.R. Rhyne, Personal Communication) (see Map 26, locality 8).

Rutile: *Rutile* crystals occur as float on the old Jolly place in the general vicinity of Fox Mountain (see Map 26, locality 9), near the southern edge of Love Valley.

Jackson County

Ultramafic Minerals: The town of Webster in west central Jackson County is in part built on an ultramafic ring dike (see Map 27, locality 1). This dike contains the minerals *bronzite* (enstatite), *annabergite*, *mitchellite*, *opaline chalcedony*, *magnesite*, greenish *druzy quartz*, *talc, serpentine, goethite, chromite, chrysotile, chrysolite (olivine), diopside, tremolite, marmolite, anthophyllite, actinolite, garnierite and genthite.* The deposit also contains *websterite* which is an aggregate of *diopside and bronzite.* The best exposures are south of the town of Webster in roadcuts along the southeast bank of the Tuckasegee River,

Several peridotite bodies are located in northern Jackson County, two miles southwest of Balsam (see Map 27, locality 1a). The chief minerals of these peridotites are *enstatite, chromite, talc and olivine.* The *olivine* is noteworthy because of the unusually large size of some of the crystals. Many of these crystals measure over five inches in diameter.

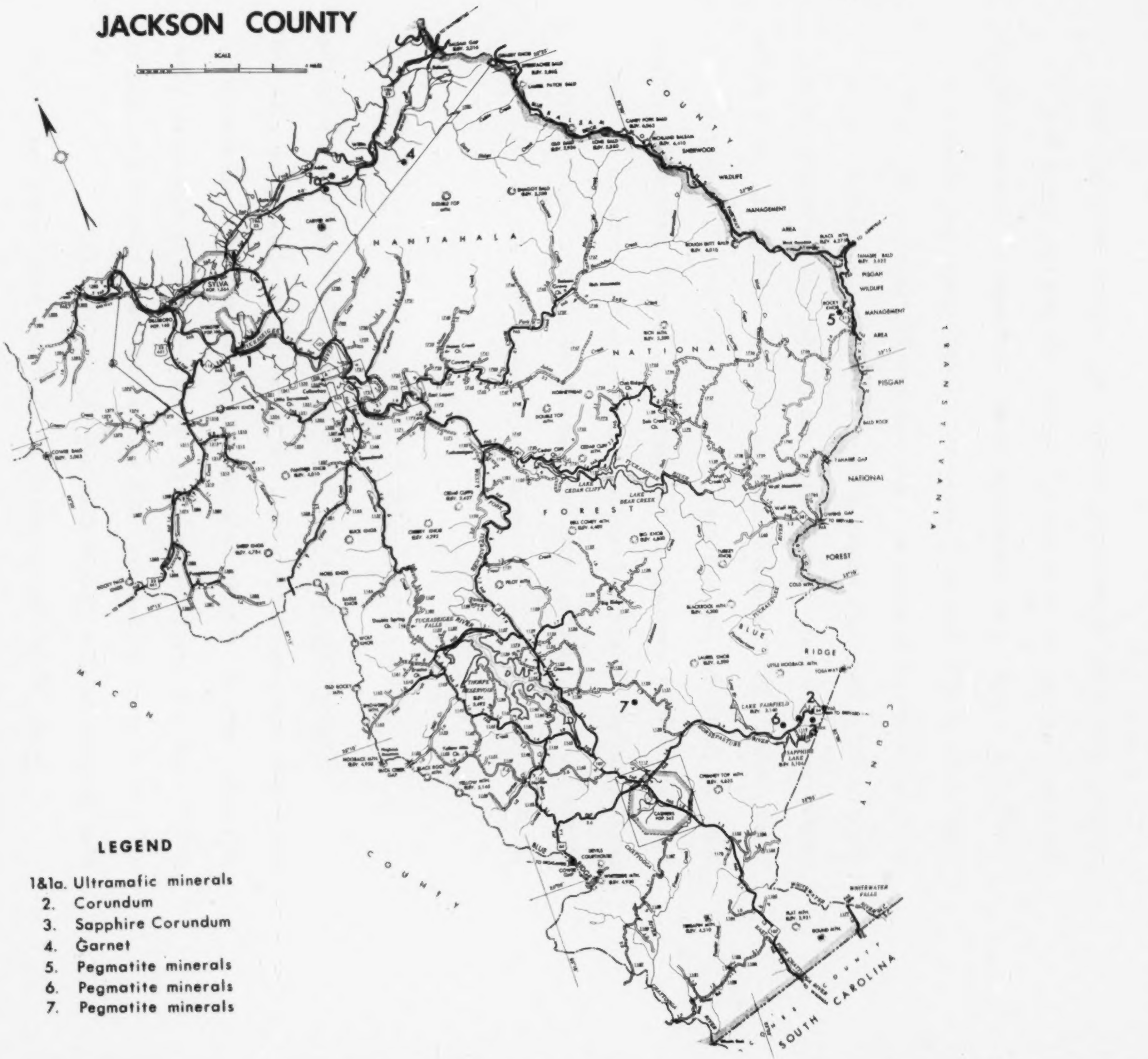
Corundum: *Corundum* in peridotite is found on the north side of highway U.S. 64 between Fairfield Lake and a tributary of Horsepasture River, 4.5 miles east of Cashiers (see Map 27, locality 2). A peridotite body carrying *corundum* crosses highway U.S. 64, 0.1 mile east of this locality and extends northward toward Little Hogback Mountain. Sapphire *corundum* is reported to occur south of highway U.S. 64 on the Jackson-Transylvania County line (see Map 27, locality 3). Sapphire and abrasive *corundum* were mined by the Sapphire Mining Company on the south shore of Sapphire Lake.

Garnet: Between 1900 and 1926, *rhodolite garnet* was mined for abrasives on Sugarloaf Mountain approximately one mile southwest of the village of Willets (see Map 27, locality 4). The *garnet* occurs in a mica schist and ranges in size from one-sixteenth to one-fourth of an inch in diameter (Broadhurst, 1955, p. 31).

Pegmatite Minerals: The L.M. McCall feldspar and mica mine, which lies southeast of Pinhook Gap, produced the minerals *cyrtolite,*

MAP 27

JACKSON COUNTY



SCALE
NANTAHALA
NATIONAL
FOREST
SYLVA
BLUE RIDGE
PISGAH
NATIONAL
FOREST
PISGAH WILDLIFE MANAGEMENT AREA
WILDLIFE MANAGEMENT AREA
TRANSYLVANIA
COUNTY
MACON
COUNTY
SOUTH CAROLINA
OCONEE COUNTY
LAKE CEDAR CLIFF
LAKE BEAR CREEK
LAKE FAIRFIELD
SAPPHIRE LAKE
CASHIERS
WHITEWATER FALLS
1
1a
2
3
4
5
6
7

LEGEND

1&1a. Ultramafic minerals
2. Corundum
3. Sapphire Corundum
4. Garnet
5. Pegmatite minerals
6. Pegmatite minerals
7. Pegmatite minerals

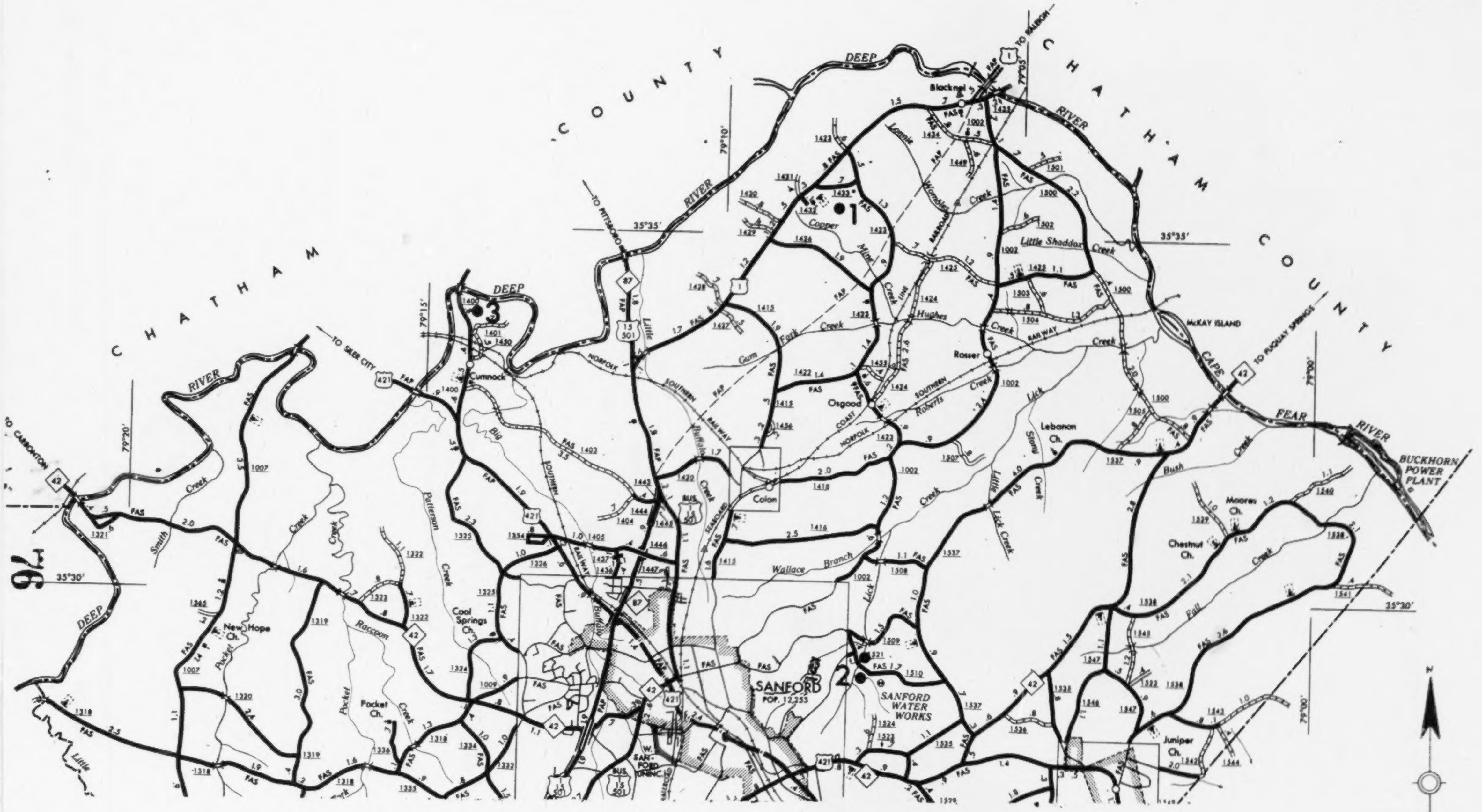
garnet, uraninite, pyrrhotite, oligoclase, quartz, muscovite and biotite (see Map 27, locality 5). *Garnet, tourmaline, beryl and samarksite* occur in an unnamed prospect southwest of Toxaway Mountain, just north of the Jackson-Transylvania County line, and about 0.3 mile northwest of highway U.S. 64 (see Map 27, locality 6). Gem quality *beryl* has been reported from the Rice mine located approximately one mile south of Sapphire Lake on the Jackson-Transylvania County line. The Sheepcliff mine on Sheepcliff Mountain, three miles north of Cashiers, was operated for *beryl* (see Map 27, locality 7). The pegmatite is composed of *microperthite, quartz, plagioclase, muscovite, beryl, garnet and samarskite.* The *quartz* found in the pegmatite is milky, smoky, gray and rose in color. The *beryl* ranges in color from yellow to bluish-green (Olsen, 1952, pp. 12-13).

Lee County

Chrysocolla, Malachite and Bornite: The Clegg mine in northern Lee County contains *chrysocolla, malachite and bornite* along with *chalcopyrite, pyrite, azurite, chalcocite, quartz* crystals, sphalerite, *galena, calcite* crystals, *siderite and limonite.* The mine lies just off U.S. 1 north of Sanford, 0.3 mile behind Deep River School and the Flat Springs Baptist Church (see Map 28, locality 1).

Gold: *Gold* nuggets occur in the creek that flows out of the reservoir at the Sanford Water Works and Pumping Station northeast of Sanford. Many local people have panned *gold* in this creek, including the authors. The largest nuggets found are about twice the size

MAP 28


CHATHAM COUNTY
CHATHAM COUNTY
DEEP RIVER
CAPE FEAR RIVER
BUCKHORN POWER PLANT
McKAY ISLAND
TO FUQUAY SPRINGS
TO RALEIGH
TO PITTSBORO
TO SILER CITY
TO CARBONTON
Blackned
Rosser
Osgood
Colon
Cumnock
Lebanon Ch.
Moores Ch.
Chestnut Ch.
Juniper Ch.
Cool Springs Ch.
Pocket Ch.
New Hope Ch.
SANFORD POP. 12,253
SANFORD WATER WORKS
W. SANFORD UNINC.
Little Shaddox Creek
Lemmie Wombles Creek
Copper Mine Creek
Hughes Creek
Gum Fork Creek
Roberts Creek
Lick Creek
Stony Creek
Little Lick Creek
Bush Creek
Fall Creek
Buffalo Creek
Wallace Branch
Little Buffalo Creek
Big Buffalo Creek
Patterson Creek
Raccoon Creek
Pocket Creek
Smith Creek
Little River
SEABOARD AIR LINE RAILROAD
SOUTHERN RAILWAY
NORFOLK SOUTHERN RAILWAY
COAST LINE
35°35'
35°30'
79°05'
79°10'
79°15'
79°20'
79°00'
1
2
3

LEGEND

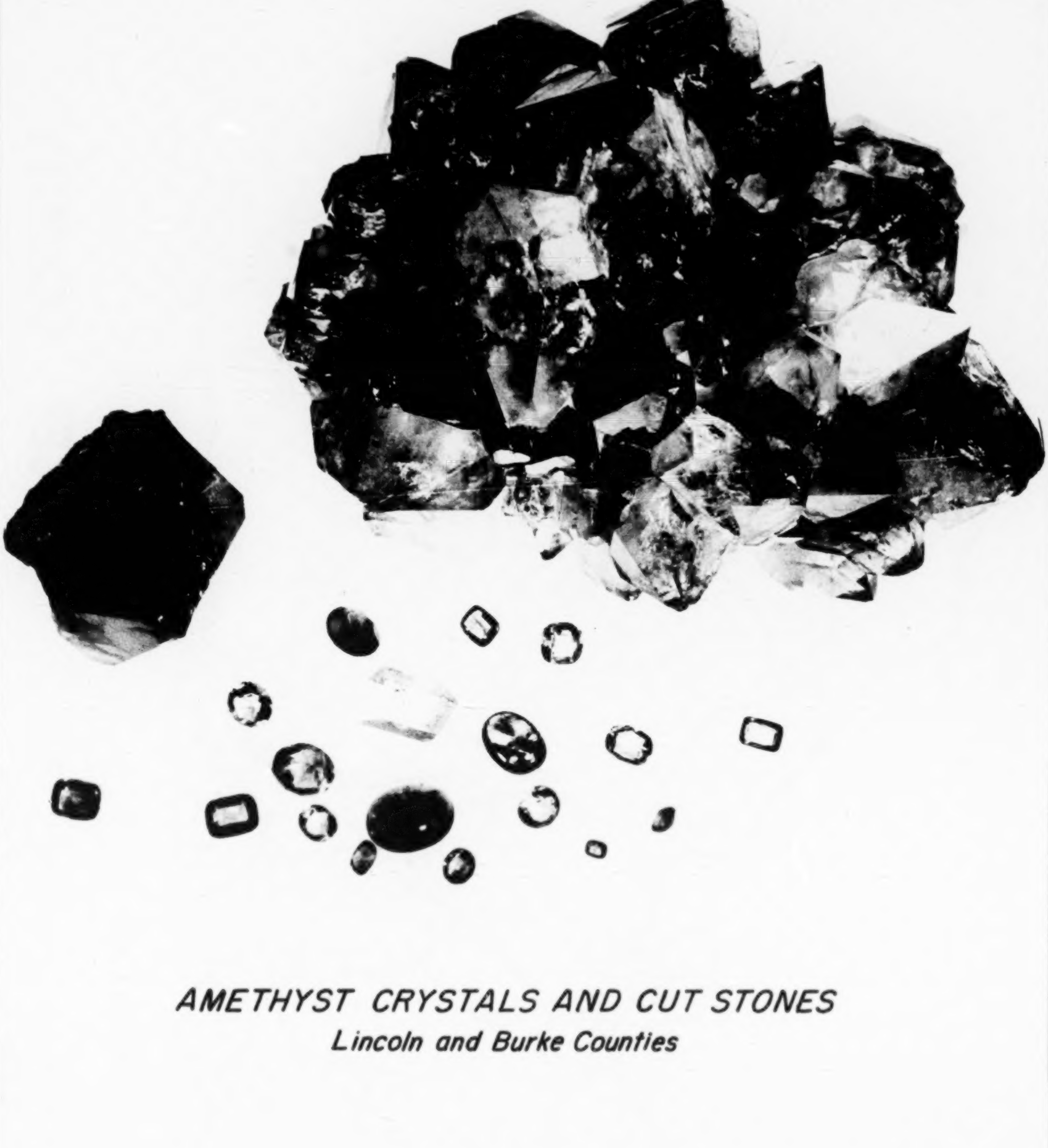
1. Copper minerals
2. Gold
3. Fossils

LEE COUNTY

SCALE

1 0 1 2 3 4 MILES

PLATE NO. 5



AMETHYST CRYSTALS AND CUT STONES
Lincoln and Burke Counties

COURTESY STATE MUSEUM, RALEIGH

PHOTOGRAPH BY S.W. Buchanan

of an average pinhead. The location can be reached by taking SR 1521 from Sanford and turning right on the Pumping Station Road (see Map 28, locality 2).

Fossils: *Fossils* of Triassic age occur in the dumps of the old Egypt coal mine on Deep River. *Phytosaur teeth and bone fragments* may be found along with pith cast of *neocalamites*. And, of course, some real North Carolina coal.

The locality may be reached by taking U.S. 421 north from Sanford for 5 miles and turning right on the Cumnock road (SR 1400). The mine lies southeast 300 yards from the intersection of the Cumnock road and Deep River at the overhead bridge on the Lee County side of the river (see Map 28, locality 3).

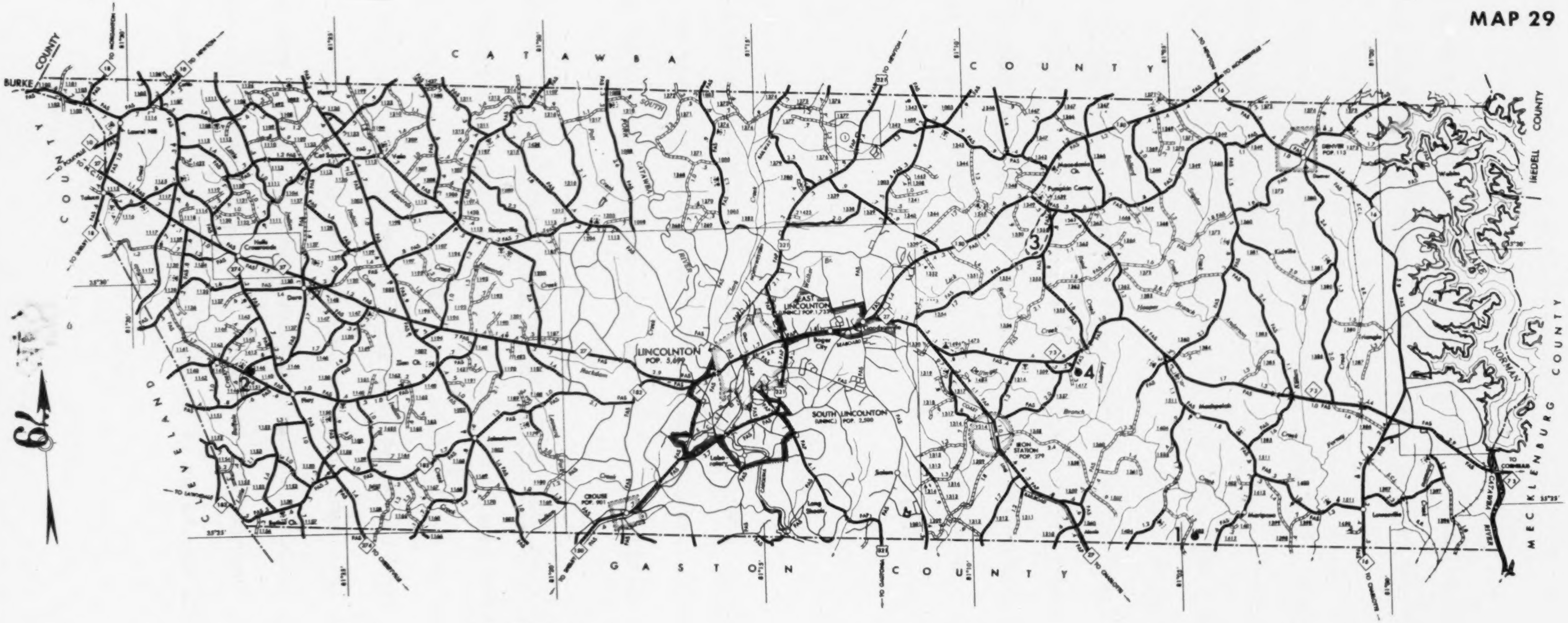
Lincoln County

Kyanite: *Kyanite* occurs 1 mile west of Mariposa on a hill (Chubb Mountain) south of the Branch Creek,accessible east of SR 1403 (see Map 29, locality 1). Lazulite also occurs sparingly at this locality.

Tourmaline, Muscovite, Smoky Quartz and Biotite: *Tourmaline, muscovite, smoky quartz and biotite* occur as float in a field on the eastern corner of the junction of SR 1146 and SR 1140, 0.6 mile west of Flay. *Beryl* from the Brown mine and the Carbine mine is reported from approximately this same location (see Map 29, locality 2).

Iron: Lincoln County contains considerable iron ore in the form of *magnetite, limonite and hematite*. The Big Ore Bank, located approximately one mile southeast of Pumpkin Center (see Map 29, locality 3),

MAP 29


CATAWBA COUNTY
GASTON COUNTY
CLEVELAND COUNTY
BURKE COUNTY
IREDELL COUNTY
MECKLENBURG COUNTY
LAKE NORMAN
CATAWBA RIVER
SOUTH FORK CATAWBA RIVER
LINCOLNTON POP. 5,699
EAST LINCOLNTON
SOUTH LINCOLNTON (UNINC.) POP. 2,500
IRON STATION POP. 279
CROUSE
DENVER
1
2
3
4

LEGEND

1. Kyanite
2. Tourmaline, Muscovite, Smoky quartz and Biotite
3. Iron
4. Amethyst

LINCOLN COUNTY

SCALE

was mined during the Revolutionary and Civil Wars (Kerr and Hanna, 1887, p. 155).

Amethyst: *Amethyst* occurs on the Reel farm approximately 2 miles northeast of Iron Station. The locality can be reached by travelling north on SR 1357 from Iron Station to SR 1509 and from there travelling east for 0.2 mile to the intersection of SR 1417. The locality lies 0.2 mile south on SR 1417 on the east side of the road. This locality has produced gem quality specimens of *amethyst* and is open to the public for a fee (see Map 29, locality 4).

Macon County

Corundum: Macon County has several *corundum* deposits which were originally worked primarily for abrasives and secondarily for gem stones. With the replacement of *corundum* by artificial abrasives soon after the turn of the century, the mining of these deposits ceased.

The Cowee Creek rubies occur in association with *rhodolite garnet, sillimanite, staurolite, iolite, monazite, gold, pyrite, chalcopyrite, pyrrhotite, sphalerite, sperrylite, ilmenite, rutile, bronzite, hornblende, zircon and kyanite* in the stream deposits of the Caler Fork of Cowee Creek (Pratt and Lewis, 1905, p. 337). This deposit is located 2.8 miles east of Wests Mills and six miles north of Franklin (see Map 30, locality 1). Some of the *rubies* are of the valued pigeon-blood color and are said to equal in color and brilliancy the Burma *rubies* (Pratt and Lewis, 1905, p. 184). The Gibson, Holebrook and Shuler properties are open to collectors for a fee.

Corundum Hill, located 2.0 miles east of the village of Cullassaja (see Map 30, locality 2) produced a large quantity of abrasive *corundum* as well as *ruby*, *oriental emerald*, *oriental amethyst* and blue and yellow *sapphire*. The *corundum* in this deposit is associated with dunite, which also contains the minerals *enstatite*, *olivine*, *serpentine and chromite*. This is also open to the public for a fee.

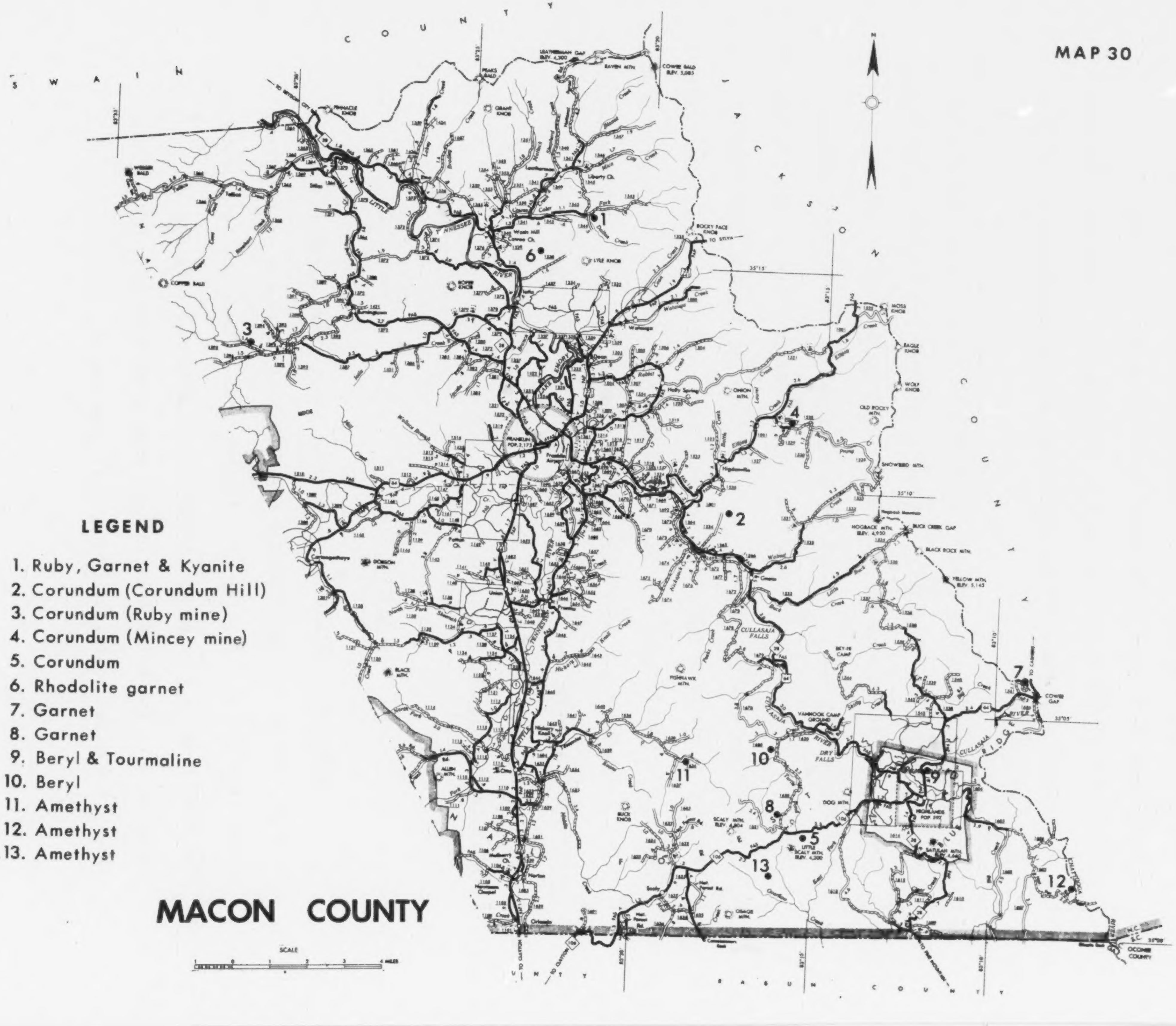
The Ruby mine, near Burningtown Creek , 2.9 miles southwest of Burningtown (see Map 30, locality 3) contains well crystallized pink and purple *corundum*. The Mincey mine, located about 0.4 mile east of Ellijay and seven miles southeast of Franklin (see Map 30, locality 4) has produced some bronze *corundum*, which, when properly polished, shows asterism. It is open to the public for a small fee.

Corundum, in association with *rutile*, *asbestos and vermiculite*, is reported in the vicinity of Bernette Lake in the Scaly Community, 3.4 miles southwest of Highlands (see Map 30, locality 5).

Garnet: *Garnet* occurs in several localities in Macon County including the *rhodolite* deposit located near the summit of Masons' Mountain on its southern slope, 1.6 miles west-southwest of Wests Mills and one mile south of Cowee Creek (see Map 30, locality 6). Associated with the *rhodolite garnet* are the minerals: *gedrite*, *hypersthene and biotite* (Henderson, 1931, pp. 563-569). *Almandite garnet* occurs in southeastern Macon County on the road to Whiteside Mountain, at the Macon-Jackson County line (see Map 30, locality 7), and also in a region 2.3 miles southwest of Dry Falls (see Map 30, locality 8).

Beryl and Tourmaline: Golden *beryl* and black *tourmaline* occur in pegmatite on highway U.S. 64-A, at the northern city limits of High-

MAP 30


S W A I N
C O U N T Y
J A C K S O N
C O U N T Y
R A B U N
C O U N T Y
N
FRANKLIN POP. 2,173
HIGHLANDS POP. 592
CULLASAJA FALLS
DRY FALLS
CULLASAJA RIDGE
LITTLE TENNESSEE RIVER
COWEE BALD ELEV. 5,085
COWEE GAP
BUCK CREEK GAP
HOGBACK MTN. ELEV. 4,950
BLACK ROCK MTN.
YELLOW MTN. ELEV. 5,143
SNOWBIRD MTN.
OLD BOCKY MTN.
WOLF KNOB
EAGLE KNOB
MOSS KNOB
ROCKY FACE KNOB
TO SYLVA
LEATHERMAN GAP
RAVEN MTN.
LYLE KNOB
GRANT KNOB
PEAKS BALD
PINNACLE KNOB
COPPER BALD
DOBSON MTN.
BLACK MTN.
ALLEN MTN.
BUCK KNOB
FISHHAWK MTN.
SCALY MTN.
LITTLE SCALY MTN. ELEV. 4,200
SATULAH MTN.
DOG MTN.
ONION MTN.
OSAGE MTN.
VANHOOK CAMP GROUND
CHATTOOGA
OCONEE COUNTY
N.C. S.C.
TO CLAYTON
TO CASHIERS
SCALE
0
1
2
3
4 MILES

LEGEND

1. Ruby, Garnet & Kyanite
2. Corundum (Corundum Hill)
3. Corundum (Ruby mine)
4. Corundum (Mincey mine)
5. Corundum
6. Rhodolite garnet
7. Garnet
8. Garnet
9. Beryl & Tourmaline
10. Beryl
11. Amethyst
12. Amethyst
13. Amethyst

MACON COUNTY

lands (see Map 30, locality 9). A mine which has produced *beryl* is located on SR 1620 which turns south off highway U.S. 64, 1.7 miles west of Dry Falls (see Map 30, locality 10). The mine lies west of SR 1620, approximately one mile south of its intersection with highway U.S. 64.

Amethyst: The Tessentee amethyst mine in the southeastern part of the county was originally operated by Tiffany and Company of New York. The mine is located on Tessentee Creek, 4.5 miles east of Otto (see Map 30, locality 11). The *amethyst* crystals are disseminated through *kaolinite* weathered from pegmatite, which evidently was intruded by the amethyst-bearing quartz vein. Kunz (1907, p. 32) states, "No finer amethysts have been discovered in this country and several thousand dollars worth of crystals were sold as the proceeds of the first development work."

Amethyst has been reported from the Ammons mine, 4.7 miles southeast of Highlands (see Map 30, locality 12) and the Waggoner mine, which lies south of highway N.C. 106, 4.7 miles southwest of Highlands on Abes Creek (see Map 30, locality 13).

Madison County

Allanite: *Allanite* occurs in at least three areas in Madison County. One of the areas is 0.5 mile south of Lemon Gap on East Fork Creek (see Map 31, locality 1). Another area is near the headwaters of Paw Paw Creek, 5.0 miles west-southwest of Marshall (see Map 31, locality 2). The third area is near Pine Creek Church on Little Pine Creek, 5.6 miles southwest of Marshall (see Map 31, locality 3).

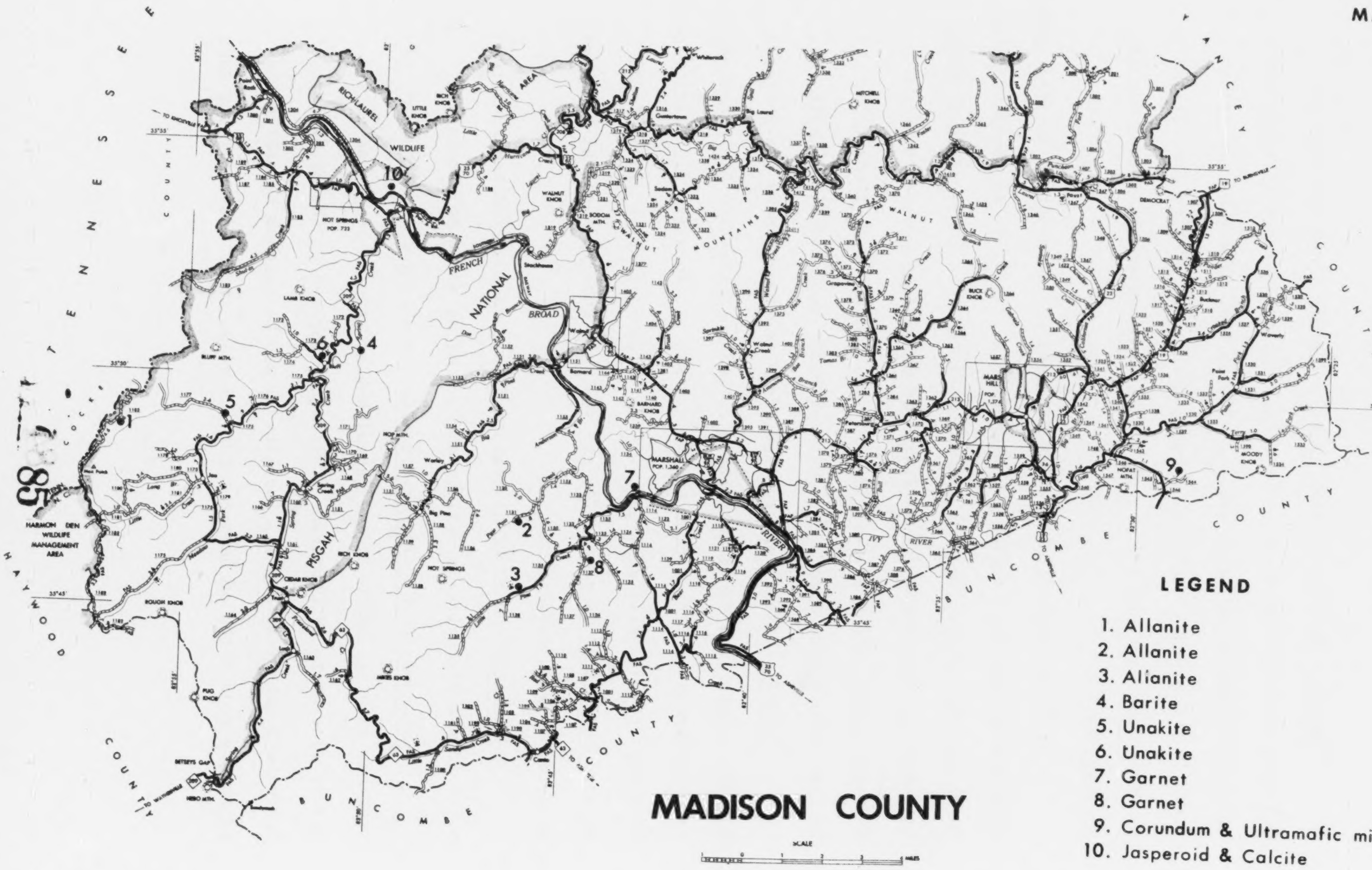
Barite: *Barite* has been mined on Spring Creek approximately 0.9 mile northeast of Bluff. The barite occurs in large crystals and crystalline masses in veins (Keith, 1904, p. 9). These barite veins trend in a northeast-southwest direction and pass through the village of Stackhouse where *barite* has also been mined extensively (see Map 31, locality 4).

Unakite: *Unakite*, a granite composed of yellow-green *epidote*, pink *feldspar and quartz*, is used as an ornamental stone. It is found as dikes which cut the country rock on Roaring Fork Creek, a short distance above its entrance into Meadow Creek Fork, 2.8 miles southwest of Bluff (Watson, Laney and Merrill, 1906, p. 172) (see Map 3, locality 5). It is also reported to occur just north of Bluff (see Map 31, locality 6).

Garnet: *Garnet* occurs just north of Redmon above the Southern Railway tracks (see Map 31, locality 7) and approximately two miles southwest of Redmon on Little Pine Creek (see Map 31, locality 8). This latter locality is the Little Pine garnet mine. The variety of *garnet* found at both localities is *almandite*, and some gem-quality material has been produced in each deposit.

Monazite: *Monazite* crystals and massive *monazite* have ben removed from a pegmatite on Bull Creek, 1.5 miles south of Petersburg.

Corundum and Ultramafic Minerals: Pink and white *corundum*, *serpentine*, *olivine*, *chromite and* greenish-black *spinel* are found at the Carter mine north of Democrat. This mine, located on the headwaters of Holcombe Branch (see Map 31, locality 9) can be reached by taking the secondary road north of Democrat for 1.7 miles to SR 1544, turning east


TENNESSEE COUNTY
COCKE
YANCEY COUNTY
BUNCOMBE COUNTY
HAYWOOD COUNTY
RICH LAUREL
WILDLIFE
AREA
HOT SPRINGS POP 723
FRENCH BROAD
NATIONAL
PISGAH
WALNUT MOUNTAINS
WALNUT
IVY RIVER
RIVER
MARSHALL POP 1,360
MARS HILL
DEMOCRAT
HARMON DEN WILDLIFE MANAGEMENT AREA
BETSEYS GAP
1
2
3
4
5
6
7
8
9
10
SCALE
MILES

MADISON COUNTY

LEGEND

1. Allanite
2. Allanite
3. Alianite
4. Barite
5. Unakite
6. Unakite
7. Garnet
8. Garnet
9. Corundum & Ultramafic minerals
10. Jasperoid & Calcite

beyond the Pleasant Gap Methodist Church, and following this road east for 0.4 mile to a lone barn on the north bank of the road. The old mine workings lie several hundred yards north of the barn on a small tributary to Holcombe Branch.

Jasperoid and Calcite: *Jasperoid* occurs on the north bank of the French Broad River 1200 feet northwest of the Montaqua Hotel in Hot Springs, in unaltered dolomite and limestone (see Map 31, locality 10). Associated with the *jasperoid* are *calcite* crystals up to 1/2 inch in length (Oriel, 1950, p. 11).

McDowell County

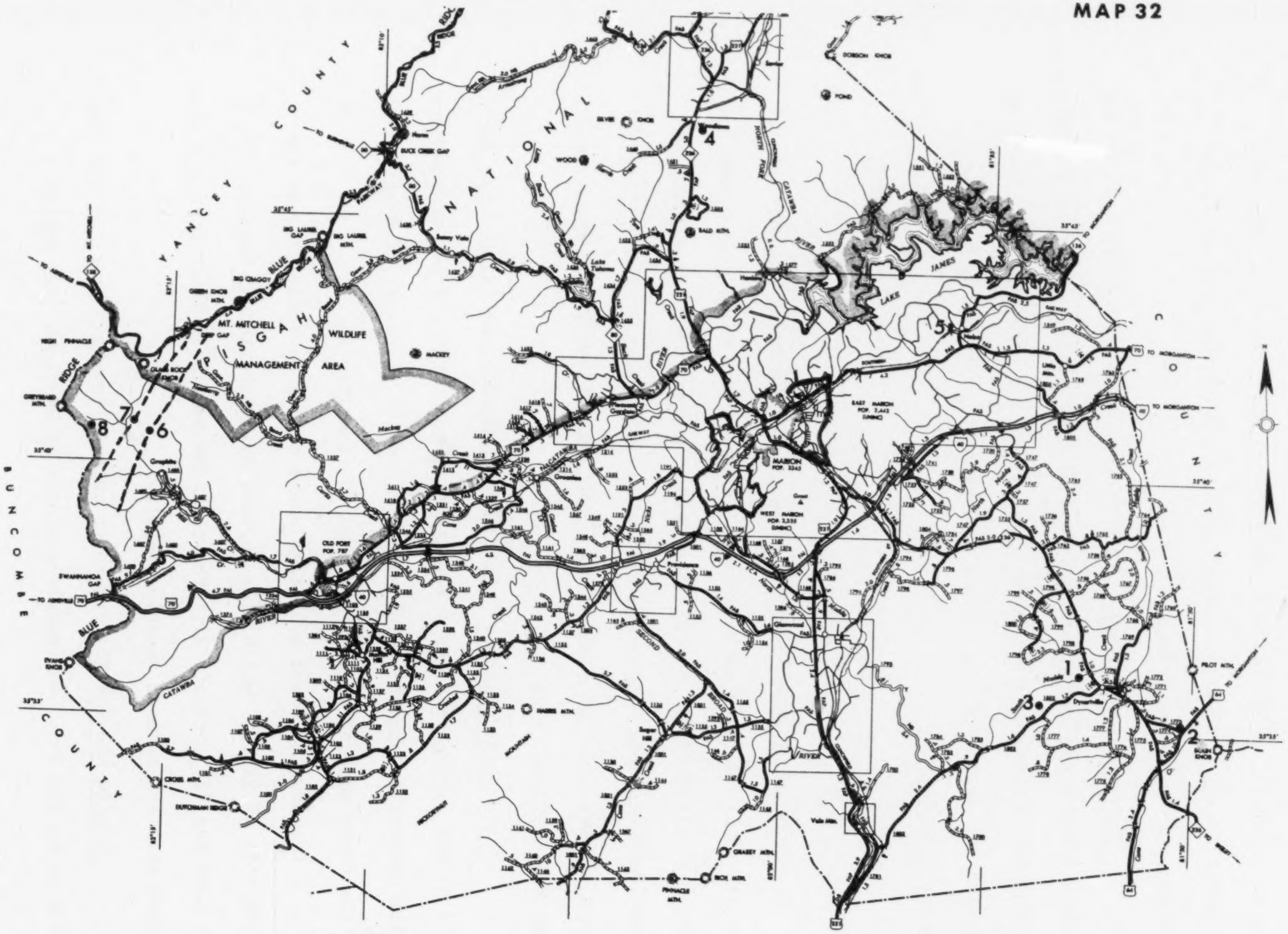
Diamond: The Dysartsville area in southeastern McDowell County was placer mined for *gold* before the Civil War and mining continued for some time afterwards. During these mining operations, three *diamonds* were found near the headwaters of South Muddy Creek in the vicinity of where highway N.C. 226 crosses the creek, 0.3 mile north of Dysartsville (see Map 32, locality 1).

Zircon and Corundum: *Zircon and corundum* were discovered during gold placer mining in a small tributary of South Muddy Creek on the Mary Mills property, located approximately 2.0 miles southeast of Dysartsville, on the north side of SR 1773 (see Map 32, locality 2).

Corundum is found 1.5 miles southwest of Dysartsville, on the north side of SR 1802 which lies between Dysartsville and highway U.S. 221 (see Map 32, locality 3). The *corundum* occurs as float in the fields around an old farmhouse in this vicinity.

Calcite and Quartz: Dog-tooth *calcite* crystals occur in the Shady dolomite at the Woodlawn limestone quarry at Woodlawn (see Map 32,

MAP 32


YANCEY COUNTY
BUNCOMBE COUNTY
PISGAH NATIONAL
WILDLIFE MANAGEMENT AREA
MT. MITCHELL
BLUE RIDGE
LAKE JAMES
NORTH FORK CATAWBA RIVER
MARION
EAST MARION
WEST MARION
OLD FORT
TO MORGANTON
TO ASHEVILLE
1
2
3
4
5
6
7
8

MC DOWELL COUNTY

SCALE

LEGEND

1. Diamond
2. Zircon & Corundum
3. Corundum
4. Calcite & Quartz
5. Quartz
6. Graphite
7. Kyanite
8. Pegmatite minerals

locality 4). Small *quartz* crystals, some of which contain phantoms, are found a few hundred yards north of the Woodlawn limestone quarry (Mr. Shields Flynn, Personal Communication).

Quartz crystals were discovered at Nebo, in a field on the west side of highway N.C. 126, 1000 yards north of the Southern Railway tracks, in the center of the village (see Map 32, locality 5) (Mr. Adam Street, Valdese, Personal Communication).

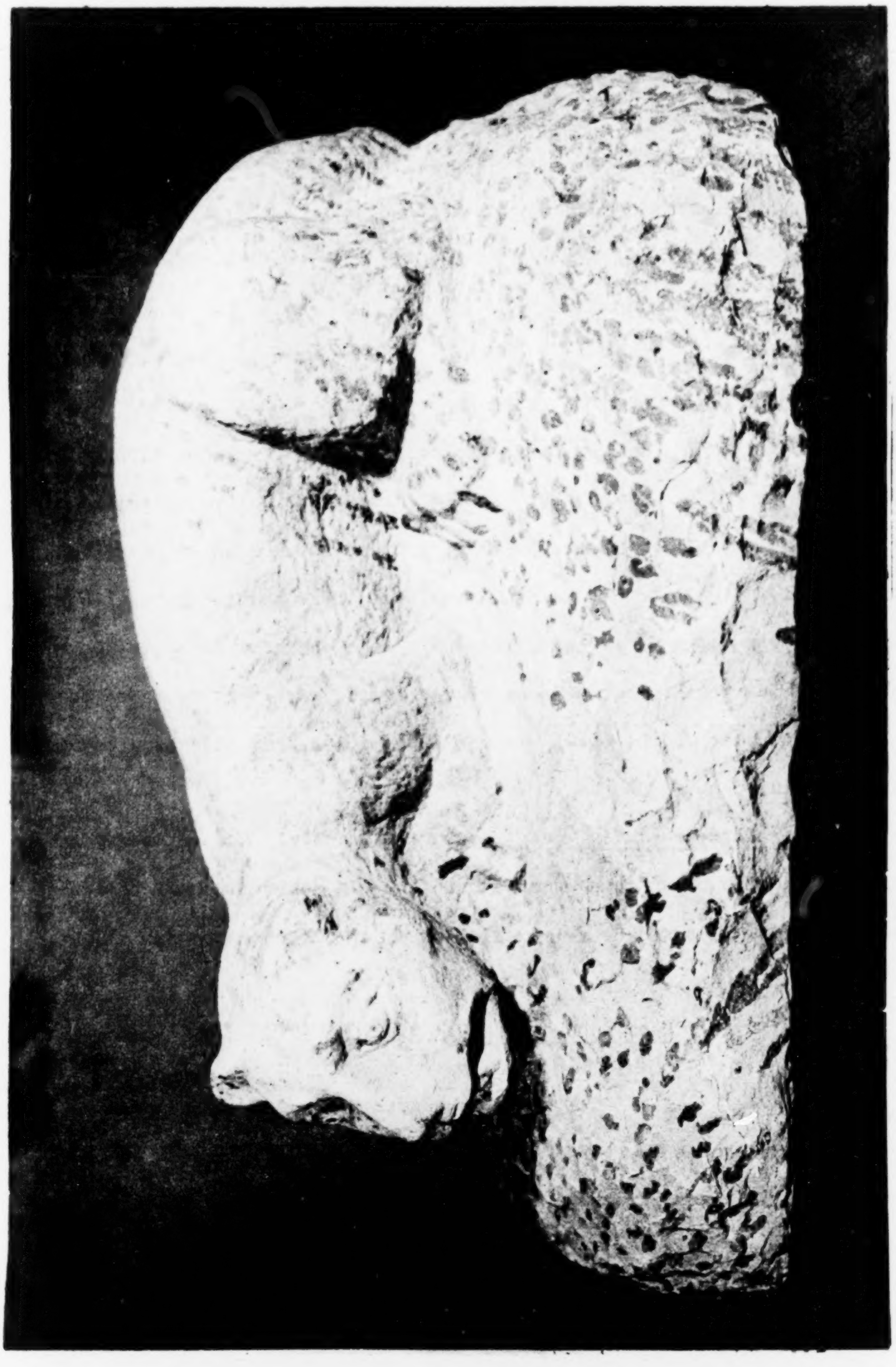
Graphite and Kyanite: A *graphite* band crosses the western edge of McDowell County from west of Laurel Knob to west of Graphiteville (see Map 32, locality 6). West of this is located a *kyanite* band which parallels the *graphite* band, but extends further south into Buncombe County, crossing highway U.S. 70 between Ridgecrest and Black Mountain (see Map 32, locality 7). The *graphite* is disseminated through mica schist, but in places pure *graphite* is associated with vein quartz. The *kyanite* occurs in mica schist, but at some places in the region it seems to be the chief constituent of the rock. It varies in color from pale blue to almost sapphire blue.

Pegmatite Minerals: *Beryl, garnet, samarskite and columbite* have been reported to occur in a pegmatite on the old Mount Mitchell toll road, near the McDowell-Buncombe County line (see Map 32, locality 8).

Mecklenburg County

Epidote: *Epidote* crystals in quartz veins as well as massive *epidote* occurs three-fourths of a mile east of the U.S. 21 exit on interstate 85 in a good exposure of granite which outcrops on the banks of the Irvin Creek. The locality is accessible from a two lane road that

PLATE NO. 6



LEOPARDITE, Mecklenburg County

A Leopard Carved from Leopardite, State Museum, Raleigh

PHOTOGRAPH BY J.W. Buchanan

runs parallel to interstate 85 in that area.

Diamond: Two *diamonds* were found in Todds Branch, one in 1852 and the other, reported in 1907, was unfortunately destroyed. None have since been reported from this locality.

Mitchell County

Pegmatite Minerals: The Spruce Pine Mining District is one of the chief *mica and feldspar* producing areas in the United States. A few of the more interesting of these deposits are described herein. (For a more complete listing of the mines of the district, see Olsen, 1944, part 2, pl. 2).

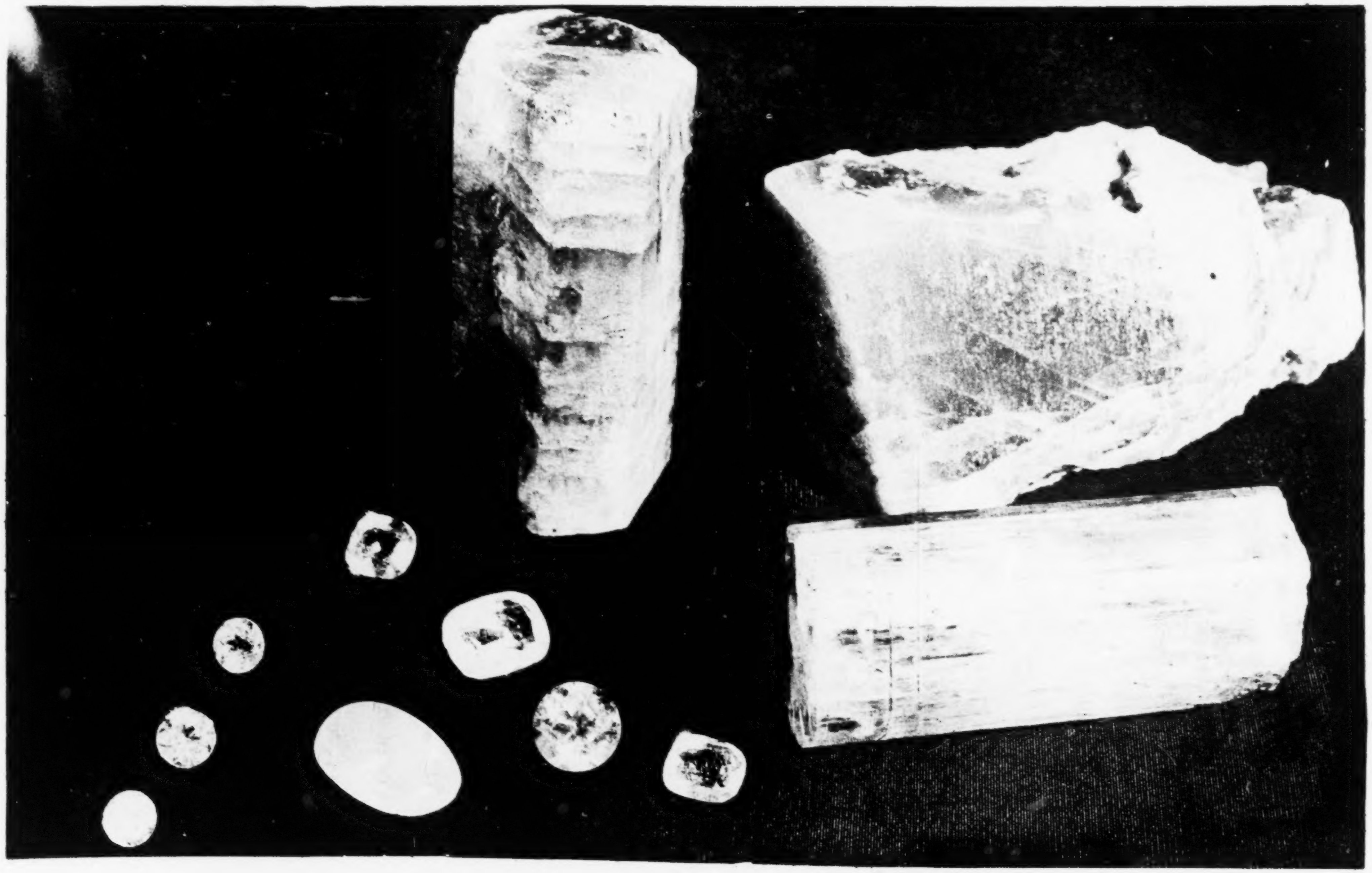
The Southers Branch mine, located 1.7 miles northwest of Spruce Pine (see Map 33, locality 1) contains the minerals: *garnet*, pink *orthoclase and hyalite* in stalactitic forms over two inches in length. The mine can be reached by taking highway N.C. 226 west of the center of Spruce Pine for 1.4 miles and turning north on SR 1150, which will dead end at the mine dumps, 0.6 mile from the highway.

The Hawk mine, located 1.2 miles north of Hawk, (see Map 33, locality 2) contains the minerals *garnet, apatite, epidote, allanite,* black *tourmaline, pyrite, thulite and* glass-clear *oligoclase.*

Rare doubly-terminated *epidote* crystals and *albite* crystals occur in a pegmatite dike on the property of Mr. Clarence E. Wilson, 1.5 miles northeast of Bakersville (see Map 33, locality 3).

Orthoclase feldspar which gives a sunstone sheen is found on the property of Benton McKinney, which lies at the end of SR 1159, 0.5 mile east of highway N.C. 261, 2.4 miles northeast of Glen Ayere (see Map 33,

PLATE NO. 7



AQUAMARINE BERYL, CRYSTALS AND CUT STONES

Mitchell and Yancey Counties

COURTESY STATE MUSEUM, RALEIGH

PHOTOGRAPH BY S. W. Buchanan

locality 4).

The Emerald mine on Crabtree Mountain, located 2.5 miles southwest of Spruce Pine and southeast of the Brush Creek Road, SR 1156, (see Map 33, locality 5) has produced a few *emeralds* large enough for cutting, but most of the crystals have been too small to be of value. The material from this mine is sometimes cut as an ornamental stone and sold as emerald in matrix. This mine is now producing many facet-grade *emeralds* and is open to the public at a small fee.

The Old 20 mine, located 5 miles southwest of Spruce Pine on the west side of the road to Little Switzerland, SR 1002, (see Map 33, locality 6) contains, in addition to *feldspar and mica*, the minerals *beryl, apatite, hyalite, cyrtolite, uraninite, autunite, torbernite and gummite*.

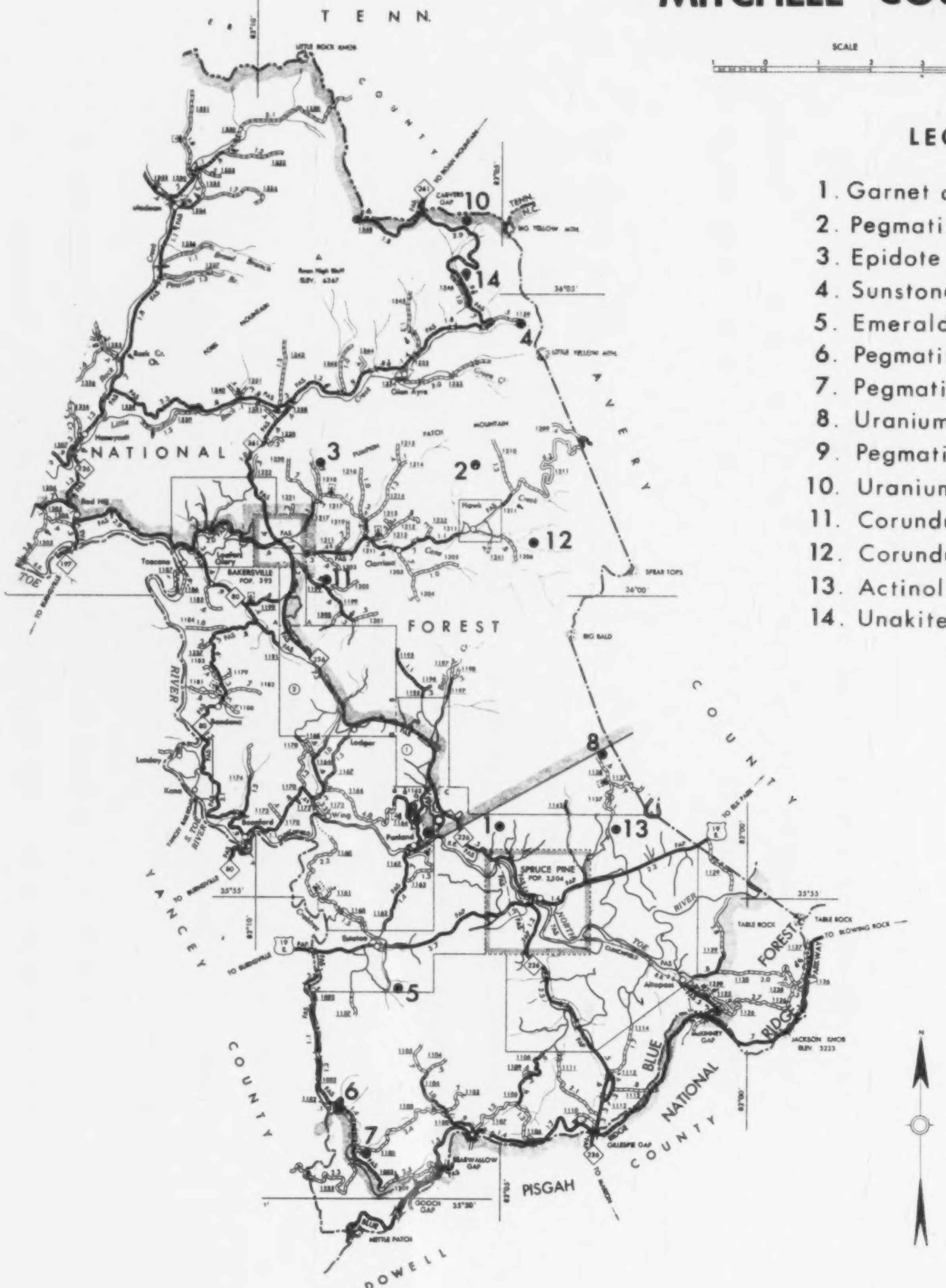
The McKinney mine, located approximately 1.6 miles south of the Old 20 mine (see Map 33, locality 7), contains the minerals *samarskite, autunite, torbernite, columbite, hyalite, amazonite, bornite, covellite, chalcopyrite, malachite, sphalerite*, massive *beryl, feldspar and mica*.

The mine, located on English Knob, on the east side of the road from Spruce Pine to Ingalls, SR 1138, 0.4 mile from the Mitchell-Avery County line (see Map 33, locality 8) has produced the minerals *pitchblende, gummite, torbernite, samarskite, autunite, monazite, columbite and cyrtolite*.

The Deer Park mine in the horseshoe bend of the North Toe River, 0.1 mile east of Penland (see Map 33, locality 9), is located in pegmatite which carries the minerals *feldspar, mica, thulite, hyalite and monazite* crystals.

MAP 33

MITCHELL COUNTY


SCALE
0
1
2
3
4 MILES
T E N N.
COUNTY
AVERY
COUNTY
YANCEY
COUNTY
McDOWELL
COUNTY
NATIONAL
FOREST
PISGAH
NATIONAL
FOREST
BLUE
RIDGE
BAKERSVILLE
SPRUCE PINE
RIVER
TOE
1
2
3
4
5
6
7
8
9
10
11
12
13
14

LEGEND

1. Garnet and Hyalite
2. Pegmatite minerals
3. Epidote and Albite
4. Sunstone
5. Emerald
6. Pegmatite minerals
7. Pegmatite minerals
8. Uranium and Rare earths
9. Pegmatite minerals
10. Uranium minerals
11. Corundum
12. Corundum
13. Actinolite
14. Unakite

Uranium minerals occur in the pegmatite across the road from the sign "Pete Crest Farm" on highway N.C. 261, 0.3 mile south of Carvers Gap (see Map 33, locality 10).

Corundum: *Corundum*, described as ruby and sapphire, is reported on the Panel Farm, 1.2 miles southeast of Bakersville (see Map 33, locality 11). Blue *corundum* associated with *kyanite and tremolite* is also reported to occur on the Dillinger farm 2.6 miles east of Hawk (see Map 33, locality 12).

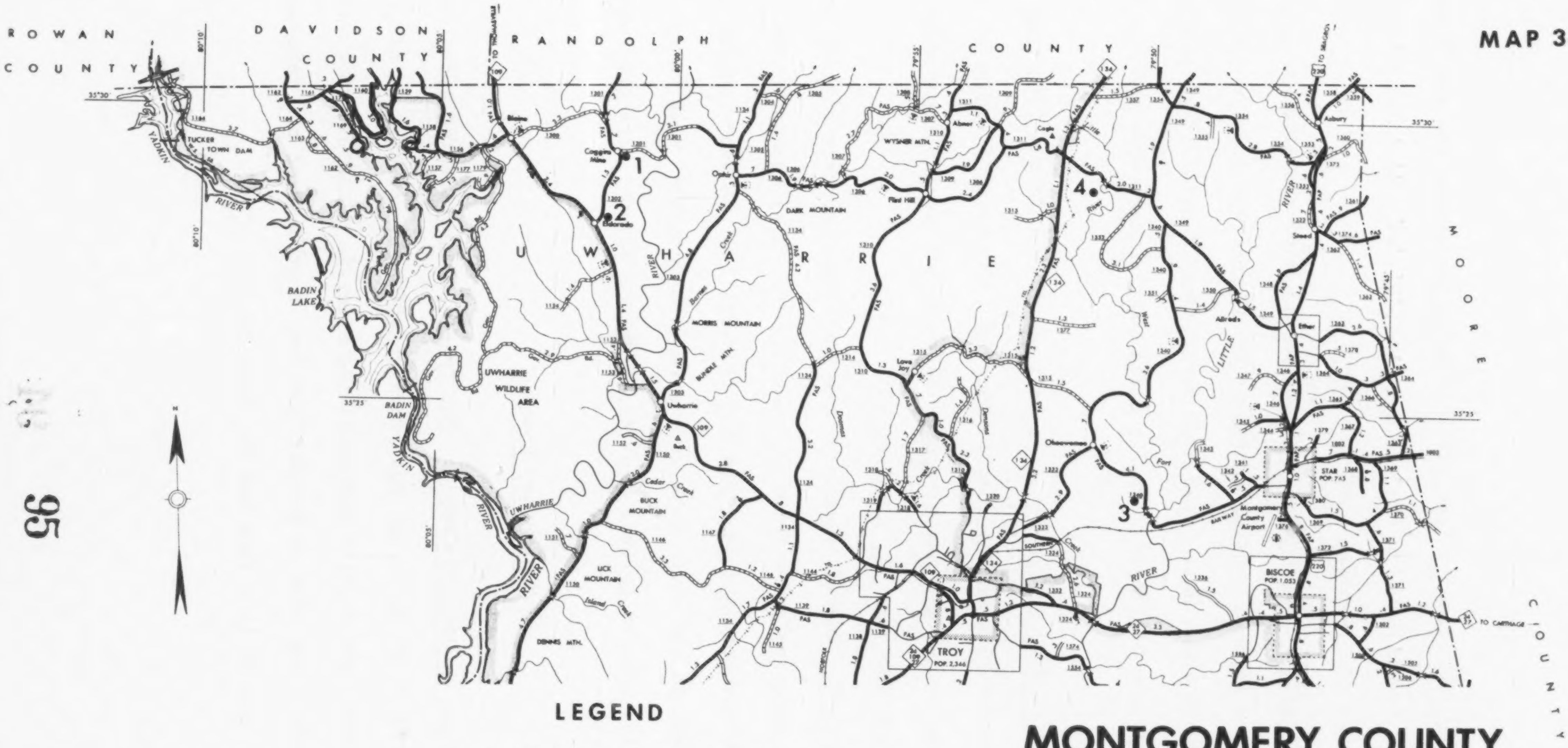
Actinolite and Talc: A deposit of *actinolite and talc* lies northeast of Spruce Pine on the road to Ingalls. The deposit occurs on the east side of the road approximately one mile north of its junction with highway U.S. 19E (see Map 33, locality 13).

Unakite: *Unakite* occurs on the Rex Peake property east of highway N.C. 261, three miles south of Carvers Gap (Mr. Roby Buchanan, Hawk, Personal Communication) (see Map 33, locality 14). A poor quality unakite can be found on the north bank of the road to Roan High Peak, approximately 1.5 miles west of Carvers Gap (Mr. Clarence Wilson, Personal Communication).

Montgomery County

Gold, Silver and Copper: The Coggins mine, located 1.5 miles north-northeast of Eldorado, has produced *gold and silver*. In addition to these ores, the deposit contained the minerals *quartz, pyrite and chalcopyrite*. The mine is located 100 feet southeast of the intersection of SR 1301 and SR 1302 (see Map 34, locality 1).

MAP 34


ROWAN COUNTY
DAVIDSON COUNTY
RANDOLPH COUNTY
MOORE COUNTY
UWHARRIE
TUCKER TOWN DAM
YADKIN RIVER
BADIN LAKE
BADIN DAM
UWHARRIE WILDLIFE AREA
UWHARRIE RIVER
DARK MOUNTAIN
WYSNER MTN.
MORRIS MOUNTAIN
BUNDLE MTN.
BUCK MOUNTAIN
LICK MOUNTAIN
DENNIS MTN.
Coggins Mine
Eldorado
Uwharrie
Ophir
Flint Hill
Abner
Eagle
Love Joy
Okeewemee
Asbury
Steed
Allreds
Ether
STAR POP 743
Montgomery County Airport
BISCOE POP 1,053
TROY POP 2,346
LITTLE RIVER
TO THOMASVILLE
TO SEAGROVE
TO CARTHAGE
35°30'
35°25'
80°10'
80°05'
80°00'
79°55'
79°50'
79°45'
1
2
3
4
SCALE
0 1 2 3 4 MILES

LEGEND

1. Gold and Silver (Coggins mine)
2. Copper and Zinc (Eldorado mine)
3. Gold and Copper (Star mine)
4. Pyrophyllite

MONTGOMERY COUNTY

The Eldorado mine, located 1.5 miles south of the Coggins mine and east of the village of Eldorado, behind the old school house, contains the minerals *azurite*, *malachite*, *hydrozincite and sphalerite* (see Map 34, locality 2).

The Star mine is 3.1 miles west of Star and can be reached by travelling north on SR 1340 for 0.5 mile from Little River. Turn west onto a gravel surface road for 0.25 mile to the mine. Minerals at the mine include *pyrite*, *chalcopyrite*, *bornite*, *chalcocite*, *molybdenite and ferrimolybdite* (see Map 34, locality 3).

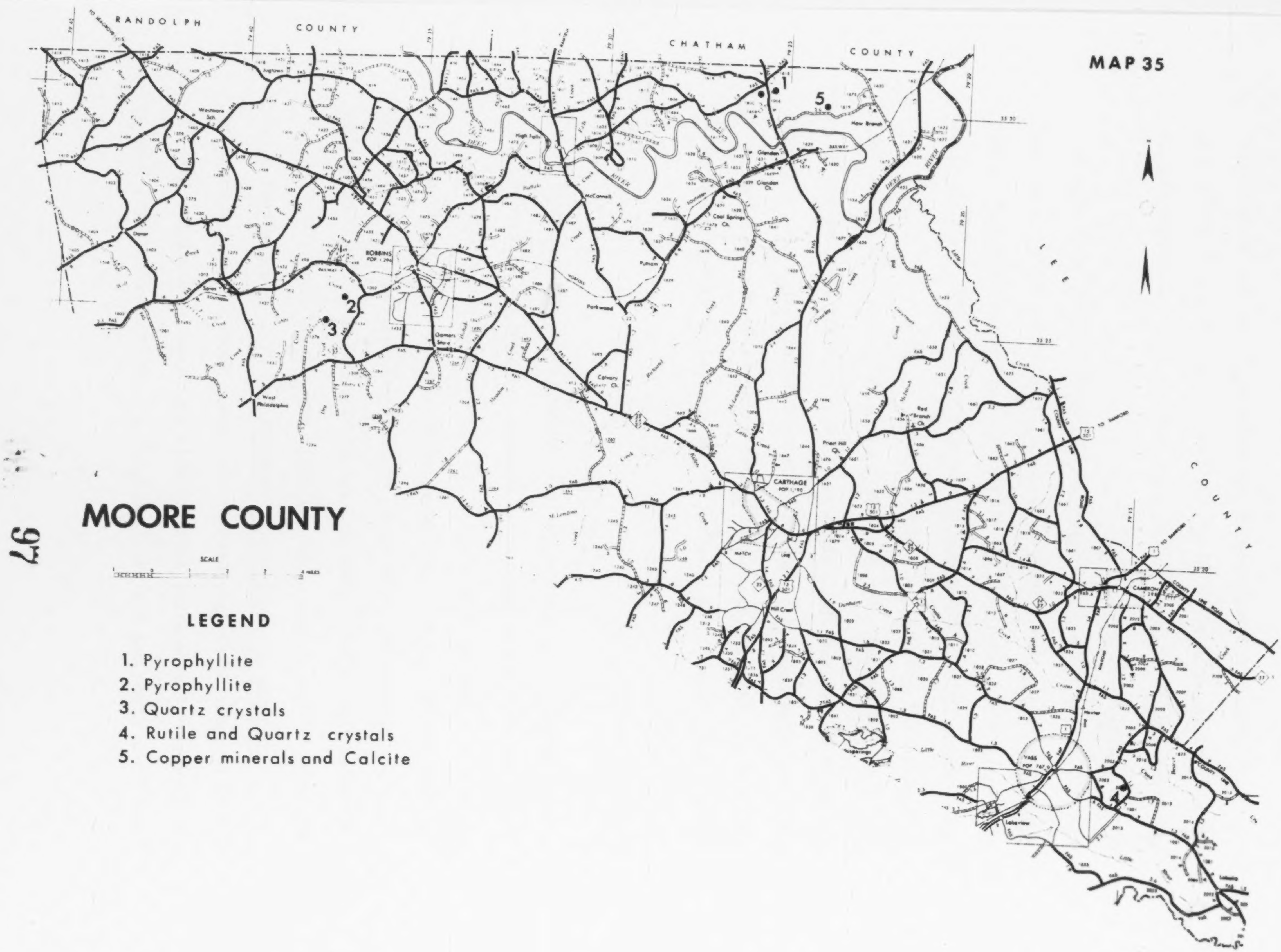
Pyrophyllite : *Pyrophyllite* is known to occur near Wadeville; on Cotton Stone Mountain, 3.5 miles north of Troy; just east of SR 1312, near Abner and northeast of Asbury in the northeastern corner of the county, (see Map 34, locality 4). Considerable prospecting has been done in some of the above areas. The material is massive and no crystals were noted (Stuckey, 1967).

Moore County

Pyrophyllite : Moore County contains several *pyrophyllite* deposits including the Glendon (Ward mine) deposit, located 1.8 miles north of Glendon (see Map 35, locality 1), and the Standard Mineral Company deposit on Cabin Creek, 2.0 miles southwest of Robbins (see Map 35, locality 2). These deposits carry, in addition to *pyrophyllite*, the minerals *lazulite*, *ottrelite (chloritoid)*, *ilmenite*, *specularite and sericite*. The Glendon deposit contains pyrite cubes and small crystals of *fluorite*.

Clear and Amethyst Quartz Crystals : Clear and *amethyst quartz* crystals occur on the property of Mrs. Nesom Moore, 2.7 miles southwest of Robbins. The locality lies 0.4 mile southeast of where Dry Creek flows into Cabin Creek and 0.8 mile southwest of the Standard Mineral Company

MAP 35


RANDOLPH COUNTY
CHATHAM COUNTY
LEE COUNTY
ROBBINS POP 1,294
CARTHAGE POP 1,190
CAMERON
VASS POP 767
High Falls
Glendon
Coal Springs Ch.
McConnell
Putnam
Parkwood
Calvary Ch.
Gamers Store
Westmore Sch.
West Philadelphia
Dover
Priest Hill
Red Branch Ch.
Hill Crest
Lakeview
DEEP RIVER
Little River
1
2
3
4
5

MOORE COUNTY

SCALE

LEGEND

1. Pyrophyllite
2. Pyrophyllite
3. Quartz crystals
4. Rutile and Quartz crystals
5. Copper minerals and Calcite

Gold: Almost every creek in the Robbins area contains some gold which can be recovered by panning. Several abandoned gold mines are in Moore County. For their locations, the reader is referred to Bulletin No. 38, "Gold Deposits in North Carolina," which is out-of-print, but may be referred to in many college and university libraries.

Rutile, Ilmenite, Pyrite: An abandoned *quartz* quarry, mined in the early 1960's, contains clusters and single crystals of *rutile* in quartz. Some crystals are 4 inches long and 1/4 inch in diameter. Reticulated *rutile* is also found at this locality along with *pyrite* cubes and *ilmenite*. The locality can be reached by taking SR 2005 from Vass to SR 2011 and following this road southeast for 0.8 mile. The old workings are southwest of the road at this point (see Map 35, locality 4).

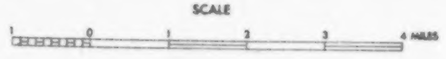
Zircon and Monazite: *Zircon and Monazite* sands are found at various localities on Little River. Localities are too numerous to mention, but at almost any accessible spot along Little River in southeastern Moore County these minerals can be panned with fair success.

Copper: The copper prospect on the Haw Branch Road, 1.6 miles northeast of Glendon, has produced cabinet specimens of *azurite, malachite and calcite*. This deposit can be reached by taking SR 1006 north from Glendon for 0.9 mile and turning east on SR 1619, 1.3 miles. At this point, a logging road turns north. In a short distance, the logging road forks at a sawdust pile and the right fork leads to the old diggins, 100 feet beyond the sawdust pile (see Map 35, locality 5).

Orange County

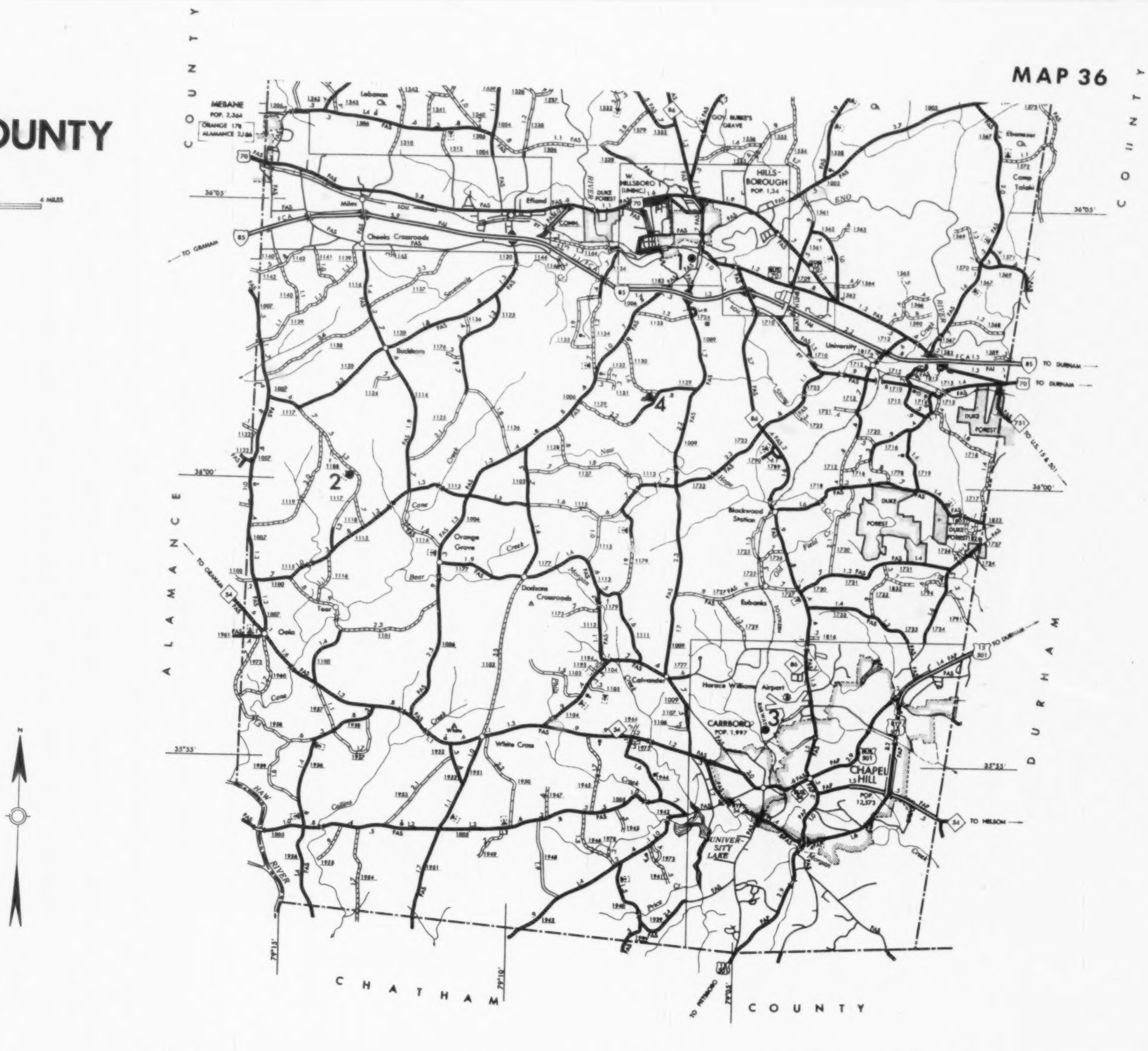
Pyrophyllite, Lazulite, and Andalusite These minerals occur in

ORANGE COUNTY


SCALE
1
0
1
2
3
4 MILES

LEGEND

1. Pyrophyllite
2. Pyrophyllite
3. Hematite
4. Barite


MAP 36
MEBANE POP. 2,364
ALAMANCE COUNTY
DURHAM COUNTY
CHATHAM COUNTY
HILLSBOROUGH POP. 1,34
W. HILLSBORO (UNINC.)
GOV. BURKE'S GRAVE
ENO RIVER
Efland
Miles
Cheeks Crossroads
Buckhorn
Orange Grove
Dodsons Crossroads
Blackwood Station
Eubanks
Calvander
Horace Williams Airport
CARRBORO POP. 1,997
CHAPEL HILL POP. 12,573
UNIVERSITY LAKE
White Cross
Oaks
Teer
HAW RIVER
University
DUKE FOREST
Camp Tolaki
Ebenezer Ch.
Lebanon Ch.
TO GRAHAM
TO DURHAM
TO U.S. 15 & 501
TO DURHAM
TO FARRINGTON
TO PITTSBORO
TO HILSON
36°05'
36°00'
35°55'
79°15'
79°10'
79°05'
N
1
2
3
4

the Piedmont Minerals Company mine at Hillsborough. This area is just south of the city limits and beside the Southern Railway (see Map 36, locality 1). The pyrophyllite occurs as rosettes that measure up to 1 1/2 inches in diameter and make excellent specimens. Some *topaz* is also found at this locality.

Radiating *pyrophyllite* crystals occur four miles due north of Teer on the south side of SR 1117 on the Saline Sykes property, which lies north of the Jesse Sykes Long Meadow Dairy (see Map 36, locality 2).

Pyrophyllite has been mined on a small scale and prospected for in several localities in Orange County. For these localities the reader is referred to Bulletin No. 81, Division of Mineral Resources, North Carolina Department of Conservation and Development (1968).

Hematite: *Hematite* occurs at the Chapel Hill iron mine, on Iron Mine Hill, 0.2 miles west of SR 1759 and one mile southwest of the intersection of N.C. 86 and SR 1760 (Allen and Wilson, 1968) (see Map 36, locality 3).

Barite: *Barite* veins are located in central Orange County, south of Hillsborough. The locality is west of the intersection of SR 1130 and SR 1129 (see Map 36, locality 4).

Person County

Sagenite: *Quartz* crystals containing *chlorite and hematite* occur on SR 1717 between Surl and Mt. Tirzah in southeastern Person County. The locality is situated on the west side of the road, across from a church, approximately 1.9 miles north of Mt. Tirzah (Mr. J.A. Price, Durham, Personal Communication) (see Map 37, locality 1).

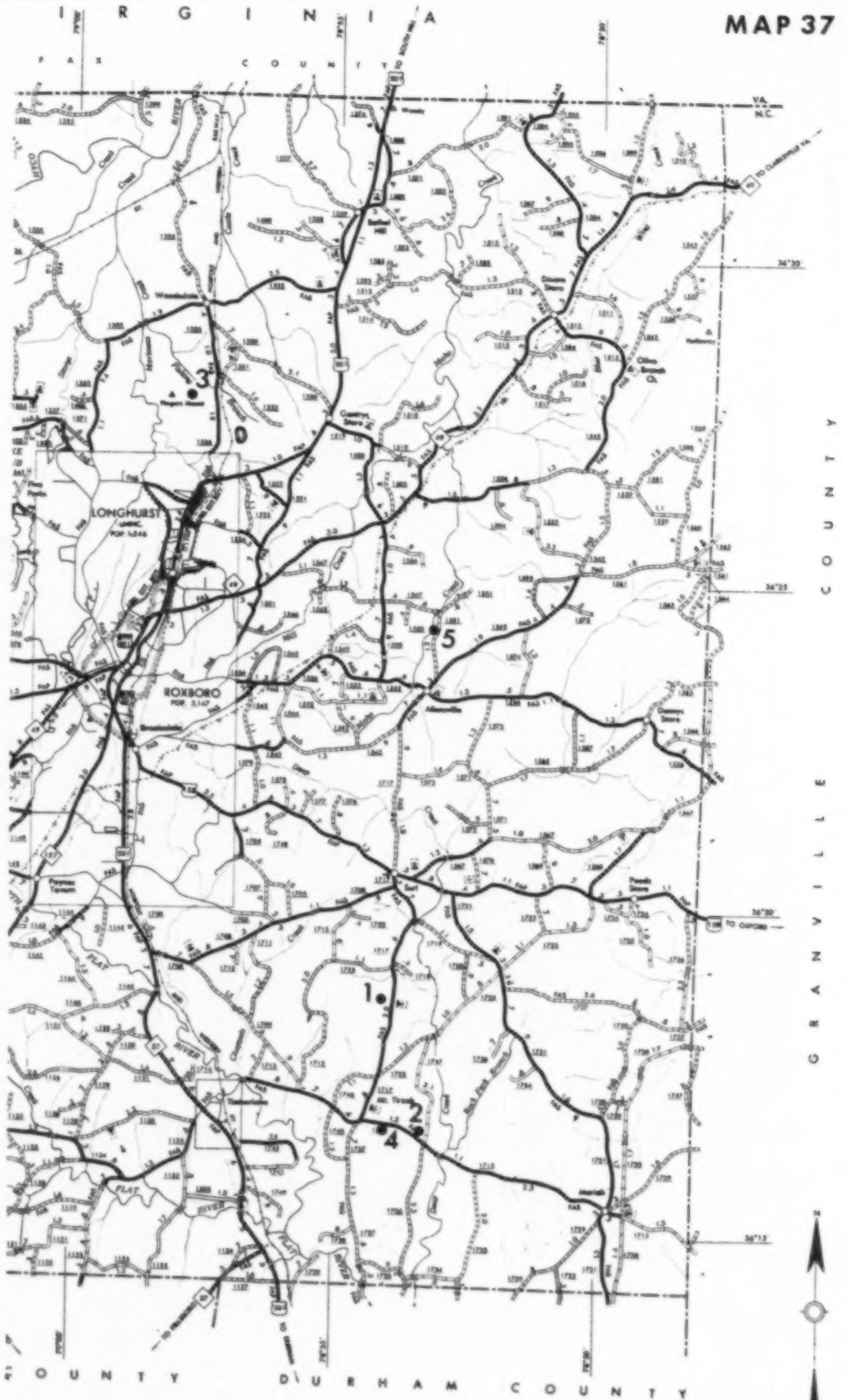
PERSON COUNTY

SCALE

LEGEND

1. Sagenite
2. Pyrite and Limonite
3. Pyrophyllite and Kyanite
4. Limonite
5. Malachite and Bornite

MAP 37


IRGINIA
COUNTY
VA.
N.C.
LONGHURST
ROXBORO
1
2
3
4
5
0
GRANVILLE COUNTY
DURHAM COUNTY
COUNTY
TO OXFORD
FLAT
RIVER
N

Pyrite and Limonite: *Pyrite* crystals one inch in diameter occur in the road banks and in the surrounding country rocks on SR 1715 between Mt. Tirzah and Moriah, approximately one mile east of Mt. Tirzah. *Limonite* pseudomorphs after *pyrite* are found on SR 1715 approximately 0.3 mile west of Mt. Tirzah (Mr. J.A. Price, Durham, Personal communication) (see Map 37, locality 2).

Pyrophyllite and Kyanite: *Pyrophyllite and kyanite* in radiating rosettes are found in association with vein quartz on the southern end of Hager's Mountain northwest of Longhurst. The locality can be reached by taking SR 1326 between Longhurst and Woodsdale north from Longhurst for 1.9 miles. The locality lies west of the road at this point, between the road and Marlowe Creek (see Map 37, locality 3).

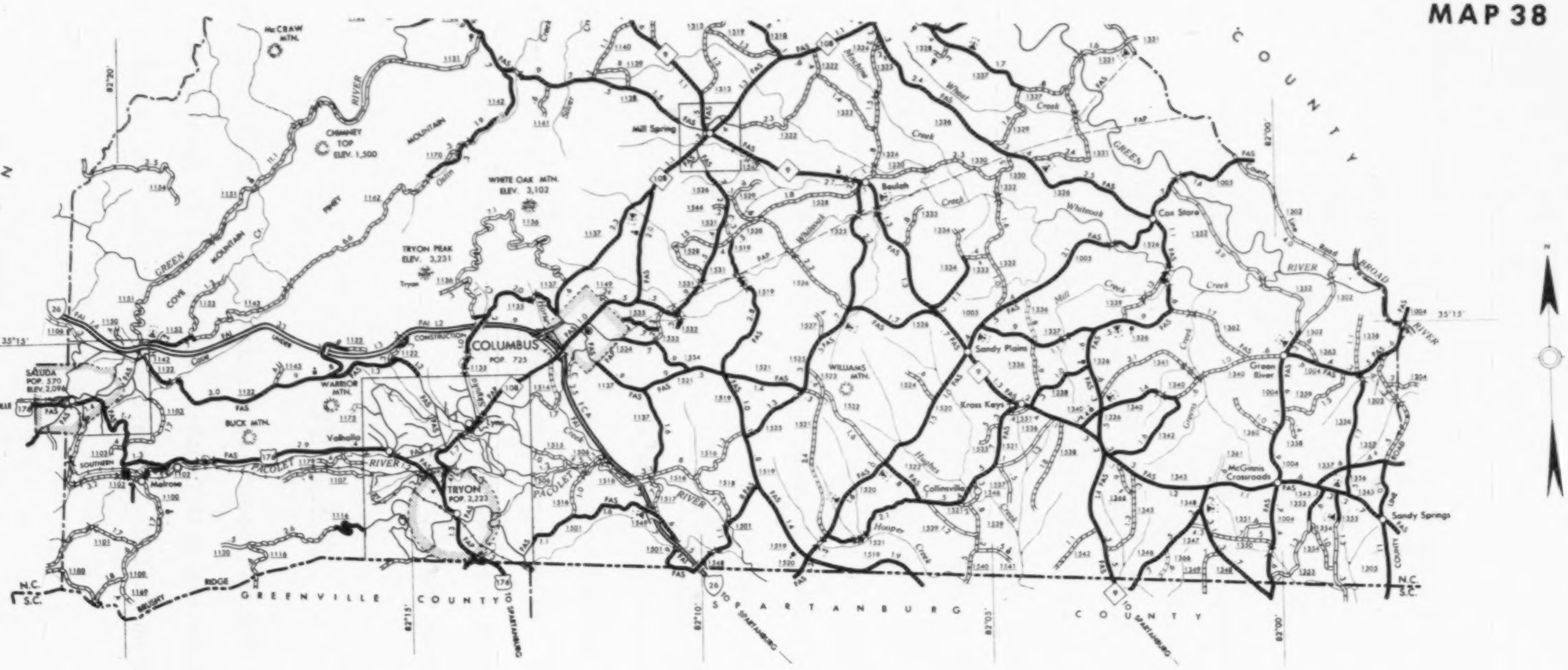
Limonite: *Limonite* pseudomorphs are found south of SR 1715 approximately 0.5 mile southeast of Mt. Tirah (see Map 37, locality 4).

Malachite and Bornite: *Malachite and bornite* occur at the Durgy mine north of Allensville in the east-central part of the county. The locality can be reached by taking SR 1542 northeast from the Allensville crossroads for 0.3 mile and turning north on SR 1551 for approximately one mile. The mine lies west of the road at this point, between the road and Maho Creek (see Map 37, locality 5).

Polk County

Epidote: *Epidote* occurs in biotite gneiss south of Melrose on SR 1102 in southwestern Polk County. The outcrop is located in a stream under the bridge on SR 1102 and in the stream below the bridge. This

MAP 38


COUNTY
N
HENDERSON
GREENVILLE COUNTY
SPARTANBURG COUNTY
N.C.
S.C.
35°15'
82°20'
82°15'
82°10'
82°05'
82°00'
McCRAW MTN.
CHIMNEY TOP ELEV. 1,500
WHITE OAK MTN. ELEV. 3,102
TRYON PEAK ELEV. 3,231
WARRIOR MTN.
BUCK MTN.
WILLIAMS MTN.
SALUDA POP. 570 ELEV. 2,096
COLUMBUS POP. 725
TRYON POP. 2,223
Mill Spring
Beulah
Cox Store
Sandy Plains
Kross Keys
Collinsville
Green River
McGinnis Crossroads
Sandy Springs
Valhalla
Melrose
GREEN RIVER
BROAD RIVER
PACOLET RIVER
TO HENDERSONVILLE
TO SPARTANBURG

LEGEND

1. Epidote

POLK COUNTY

SCALE

1 0 1 2 3 4 MILES

locality may be reached by taking U.S. 176 east from Saluda toward Tryon for approximately 4.5 miles and turning right on SR 1102 and following SR 1102 from this point for approximately 1.8 miles to the bridge (see Map 38, locality 1). The *epidote* is in an outcrop in the creek.

Randolph County

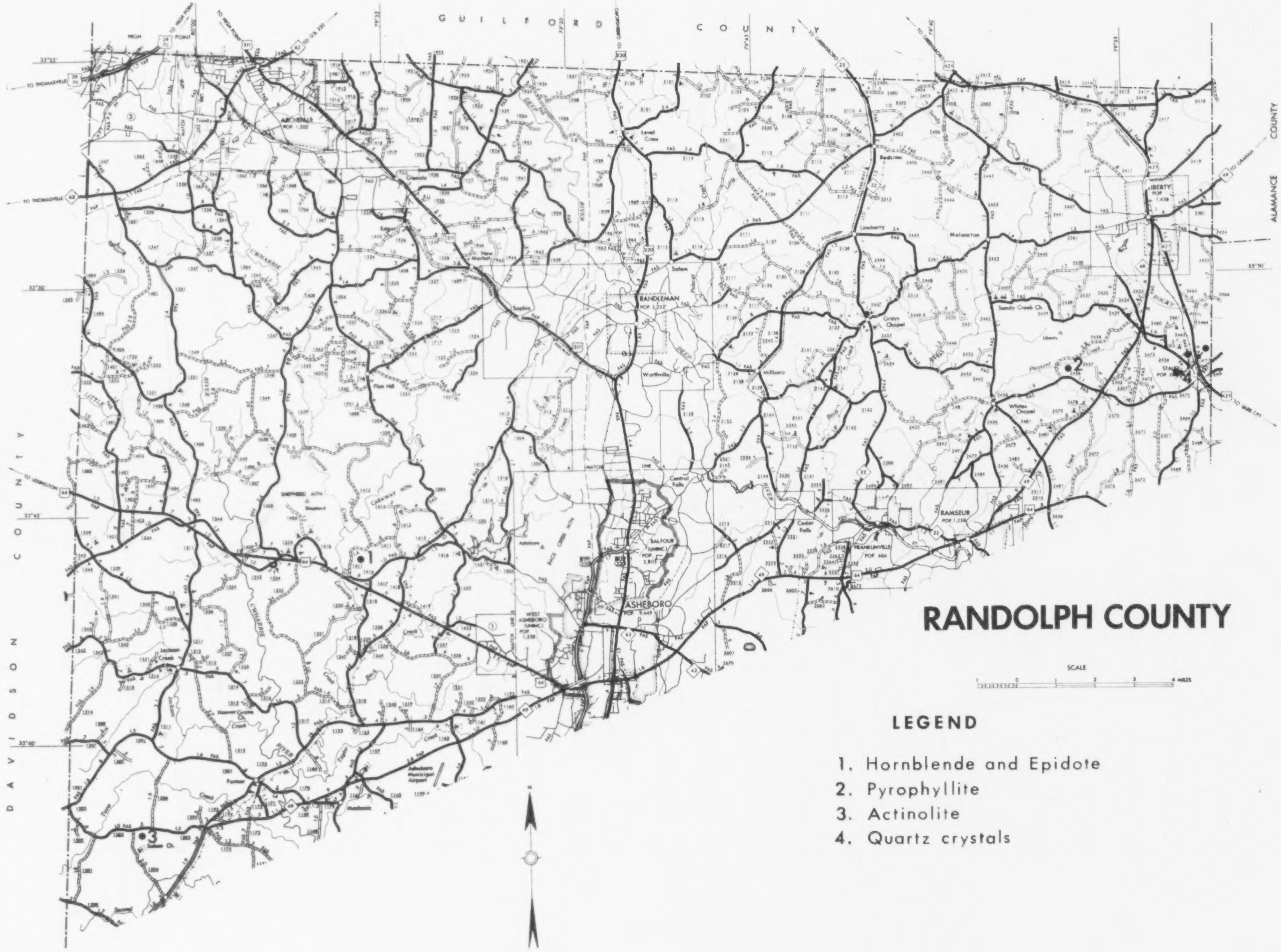
Hornblende and Epidote: Radiating *hornblende, feldspar and epidote* crystals occur in glomeroporphyry north of highway U.S. 64, six miles west of Asheboro. The locality can be reached by turning north from highway U.S. 64 on to SR 1411 and following this road for 0.6 mile. The material is located in an abandoned highway quarry on the east side of SR 1411 (see Map 39, locality 1).

Pyrophyllite and Associated Minerals: *Pyrophyllite, ottrelite, diaspore, lazulite, andalusite and pyrite* occur at the old Carolina pyrophyllite mine, 4.5 miles west of Staley (see Map 39, locality 2). A quartz crushing plant now occupies the quarry and many *quartz* crystals, some large, can be found in this material.

Rutilated Quartz: Rutilated *quartz* is reported to occur on Pilot Mountain (Genth and Kerr, 1885, p. 121). Rutilated *quartz* is also found on the Phillips farm and the Vance Cox farm located approximately 1.3 miles north-northeast of Pilot Mountain.

Actinolite in Quartz: Olive-green crystals of *actinolite* in vein *quartz* occur on the property of Mr. Walter Johnson, near Copper Hill. The locality is situated south of the road between Denton and

MAP 39


GUILFORD COUNTY
DAVIDSON COUNTY
ALAMANCE COUNTY
ARCHDALE
LIBERTY
RANDLEMAN
ASHEBORO
RAMSEUR
FRANKLINVILLE
SCALE
1
2
3

RANDOLPH COUNTY

LEGEND

1. Hornblende and Epidote
2. Pyrophyllite
3. Actinolite
4. Quartz crystals

Farmer and lies 4.2 miles west of Farmer (see Map 39, locality 3) (Mr. Boyd Mattison, Chapel Hill, Personal Communication). This is one of the few areas where *actinolite* in vein *quartz* has been reported in the state.

Quartz Crystals: *Quartz* crystals have been reported recently from the Staley area. Some few were found by the writers in the plowed fields in the area around Staley (see Map 39, locality 4).

Rutherford County

Garnet: *Garnet* occurs in Stoney Creek at Thermal City in the area between Stoney Creek Methodist Church and highway U.S. 221 (see Map 40, locality 1). Some rough crystals showing dodecahedral faces over 12 inches in diameter have been recovered from this area, but most of the *garnet* is massive.

Garnet in granite gneiss is found on Marlin's Knob, east of highway U.S. 64, four miles north of Westminster (see Map 40, locality 2). *Garnet* also occurs on SR 1007 between Ellenboro and Westminster, 0.4 mile northwest of the Puzzle Creek Bridge (see Map 40, locality 3).

Beryl and Quartz: Golden *beryl* and asteriated *quartz* have been mined on the Roy McFarland property on the Duncans Creek road, SR 1749, two miles east of SR 1006 (see Map 40, locality 4). *Beryl* and rose *quartz* occur approximately one mile north of Ellenboro at the Dycus mine (see Map 40, locality 5). *Beryl* is also found on the Martin property (see Map 40, locality 6) and on the Fred Toney property (see Map 40, locality 7) in the vicinity of the Dycus mine, north of Ellenboro.

Box quartz, sometimes containing water inclusions, and blue-banded *quartz*, occur on the Callaham place (Old Walthrop place), in float and stream gravel of Hollands Creek, 0.6 mile northwest of the Rutherfordton city limits (see Map 40, locality 8).

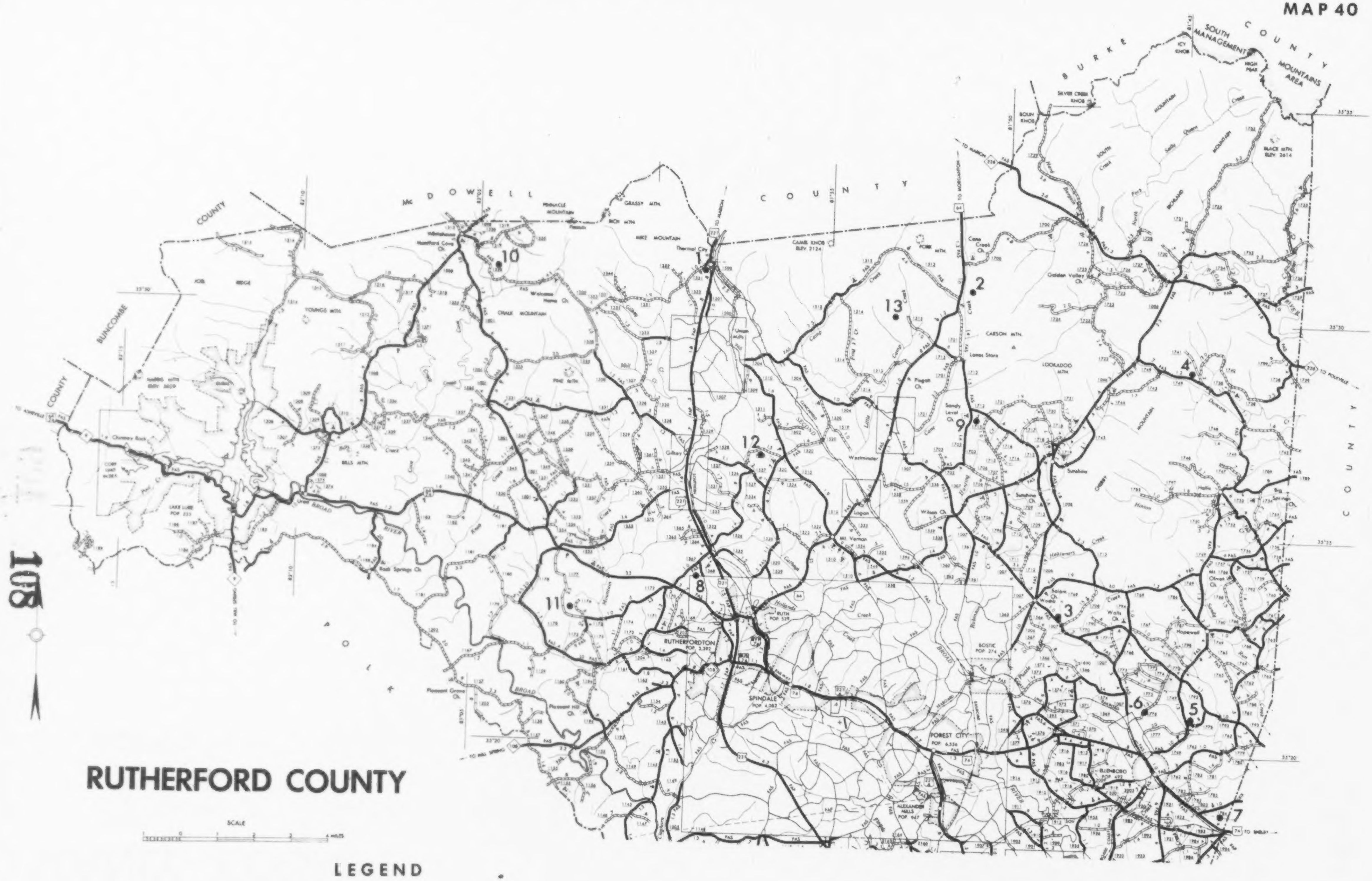
Milky quartz crystals are found at an old gold mine dump in the woods a few hundred yards across the road from the Sandy Level Church, 3.1 miles northwest of Sunshine (see Map 40, locality 9).

Galena: A *galena* prospect pit is located on the east side of the Shingle Hollow Road, SR 1328, 0.8 mile northwest of the Welcome Home Church, approximately eight miles northwest of Gilkey (see Map 40, locality 10). In addition to galena, the minerals *pyrite, chalcopyrite* and *bornite* can be found at this locality.

Fuchsite and Corundum: A pegmatite carrying *fuchsite* and pink *corundum* is located on the west side of the Blacksmith Shop road, SR 1177, 1.4 miles south of the Green Hill Grade School (see Map 40, locality 11). This deposit was originally worked by Wards Natural Science Establishment for specimen material. A mica schist composed of *fuchsite, sericite* and lenticular masses of pink *corundum* was discovered by the author on the property of Mr. Rural Groves. The deposit lies several hundred yards south of the Oak Springs Baptist Church (see Map 40, locality 12).

Diamond: In 1845, a *diamond* weighing 1 1/3 carats was found in the gold washings of the J.D. Twitty gold mine located on Cane Creek two miles south of the Rutherford-McDowell County line (see Map 40, locality 13). A smaller stone was recovered from gold washings on the property of C. Leventhrope, and was acquired by Professor Charles U. Shepard (Kunz, 1907, p. 6).

MAP 40


BURKE COUNTY
SOUTH MOUNTAINS MANAGEMENT AREA
McDOWELL COUNTY
BUNCOMBE COUNTY
POLK
COUNTY
SILVER CREEK KNOB
BLACK MTN. ELEV. 3614
GRASSY MTN.
PINNACLE MOUNTAIN
RICH MTN.
MIKE MOUNTAIN
CAMEL KNOB ELEV. 2124
CARSON MTN.
LOOKADOO MTN.
CHALK MOUNTAIN
PINE MTN.
YOUNGS MTN.
BILLS MTN.
Thermal City
Union Mills
Chimney Rock
LAKE LURE
RUTHERFORDTON
RUTH
SPINDALE
FOREST CITY
BOSTIC
ELLENBORO
ALEXANDER MILLS
Sunshine
Gilkey
Westminster
Logan
Mt. Vernon
BROAD RIVER
SCALE
1
2
3
4
5
6
7
8
9
10
11
12
13

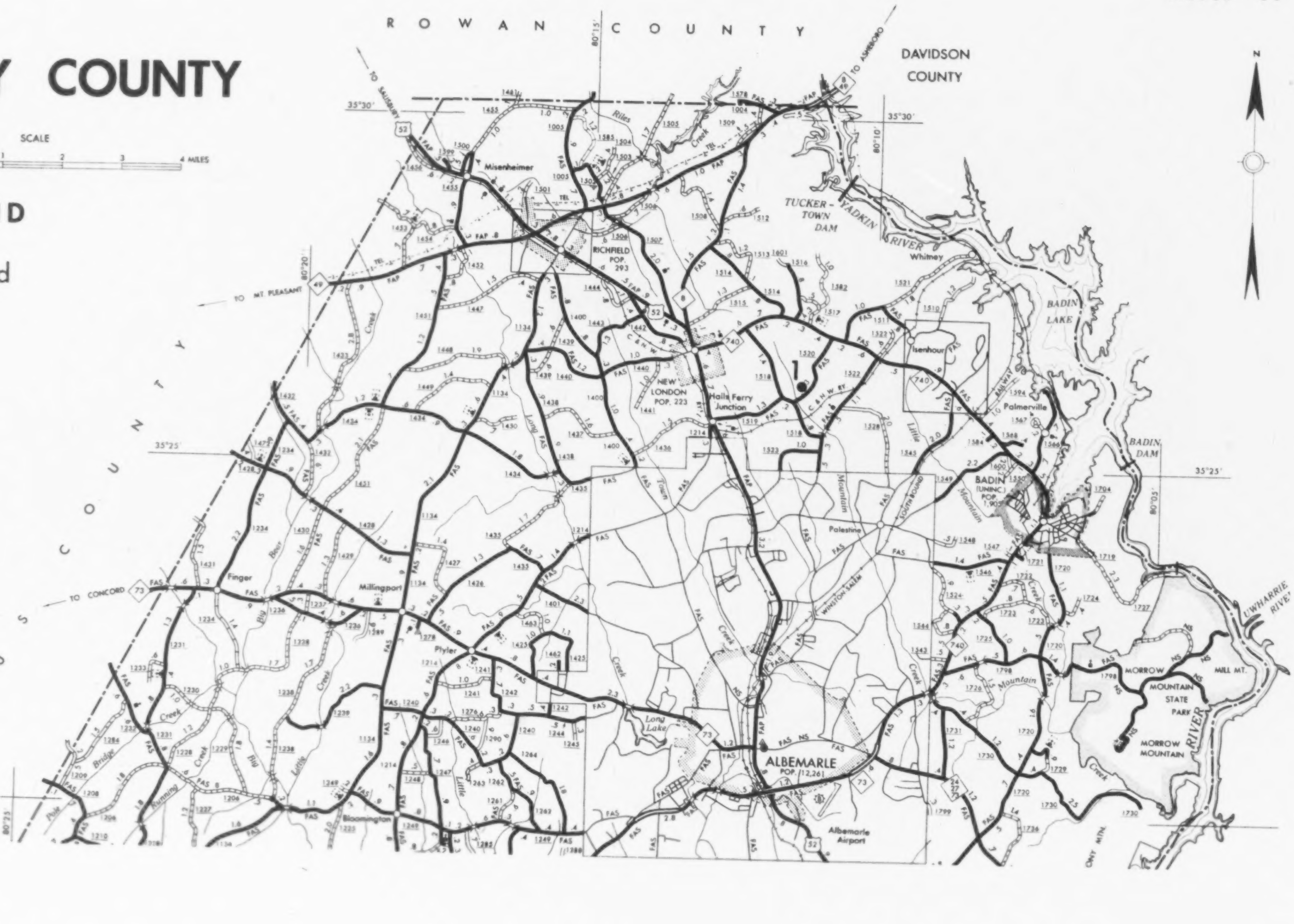
RUTHERFORD COUNTY

LEGEND

1. Garnet
2. Garnet
3. Garnet
4. Beryl and Quartz
5. Beryl and Quartz
6. Beryl
7. Beryl
8. Box quartz
9. Milky quartz crystals
10. Galena
11. Fuchsite and Corundum
12. Fuchsite and Corundum
13. Diamond

STANLY COUNTY

MAP 41


SCALE
0
1
2
3
4 MILES
N
ROWAN COUNTY
DAVIDSON COUNTY
CABARRUS COUNTY
TO SALISBURY
TO ASHEBORO
TO MT. PLEASANT
TO CONCORD
35°30'
35°25'
35°20'
80°15'
80°10'
80°20'
80°05'
80°25'
Misenheimer
RICHFIELD POP. 293
NEW LONDON POP. 223
Halls Ferry Junction
TUCKER-TOWN DAM
YADKIN RIVER
Whitney
BADIN LAKE
Isenhour
Palmerville
BADIN DAM
BADIN (UNINC.) POP. 1,905
Palestine
ALBEMARLE POP. 12,261
Albemarle Airport
Long Lake
Finger
Millingport
Plyler
Bloomington
MORROW MOUNTAIN STATE PARK
MORROW MOUNTAIN
MILL MT.
UWHARRIE RIVER
RIVER
Riles Creek
Long Creek
Big Bear Creek
Little Creek
Big Creek
Running Creek
Bridge
Mountain Creek
Little Mountain Creek
Town Creek
Rocky Creek
1

LEGEND

1. Gold

Stanly County

Gold : *Gold* has been mined in northern Stanly and Montgomery counties, and the Cotton Patch mine southeast of New London is presently in operation. This mine is also open to the public for a fee for panning and dump privileges. The mine is located two miles southeast of New London at the intersection of Mountain Creek and SR 1520 (see Map 41, locality 1).

Stokes County

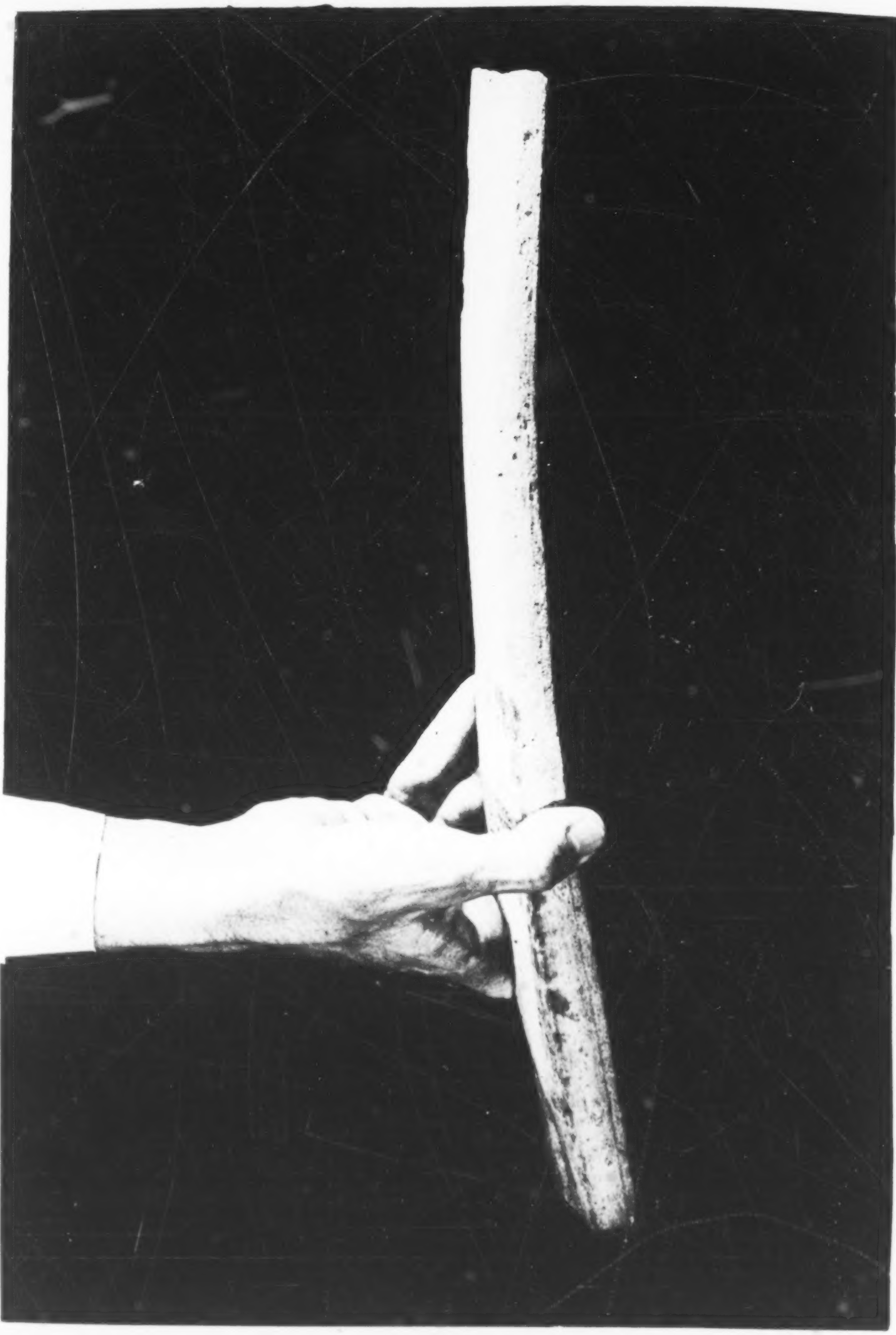
Itacolumite : *Itacolumite* is found in Stokes County at Quaker Gap on highway N.C. 66 near the village of Gap and on Sauratown Mountain two miles southwest of Gap (see Map 42, locality 1). It also occurs on Hanging Rock Mountain three miles southwest of Danbury.

Swain County

Pegmatite Minerals : Approximately 36 pegmatites are concentrated in a band striking northeast-southwest, north of Bryson City and continuing from north of Deep Creek Church to north of Franklin Grove Church. These dikes contain the minerals *feldspar, quartz, muscovite and biotite mica, garnet, pyrite, allanite, samarskite and magnetite.*

The Carson mines, located 2900 feet northwest of Deep Creek Church (see Map 43, locality 1), have been worked for clay and feldspar. The south (or No. 4) pegmatite of this group contains *graphic granite,*

PLATE NO. 8



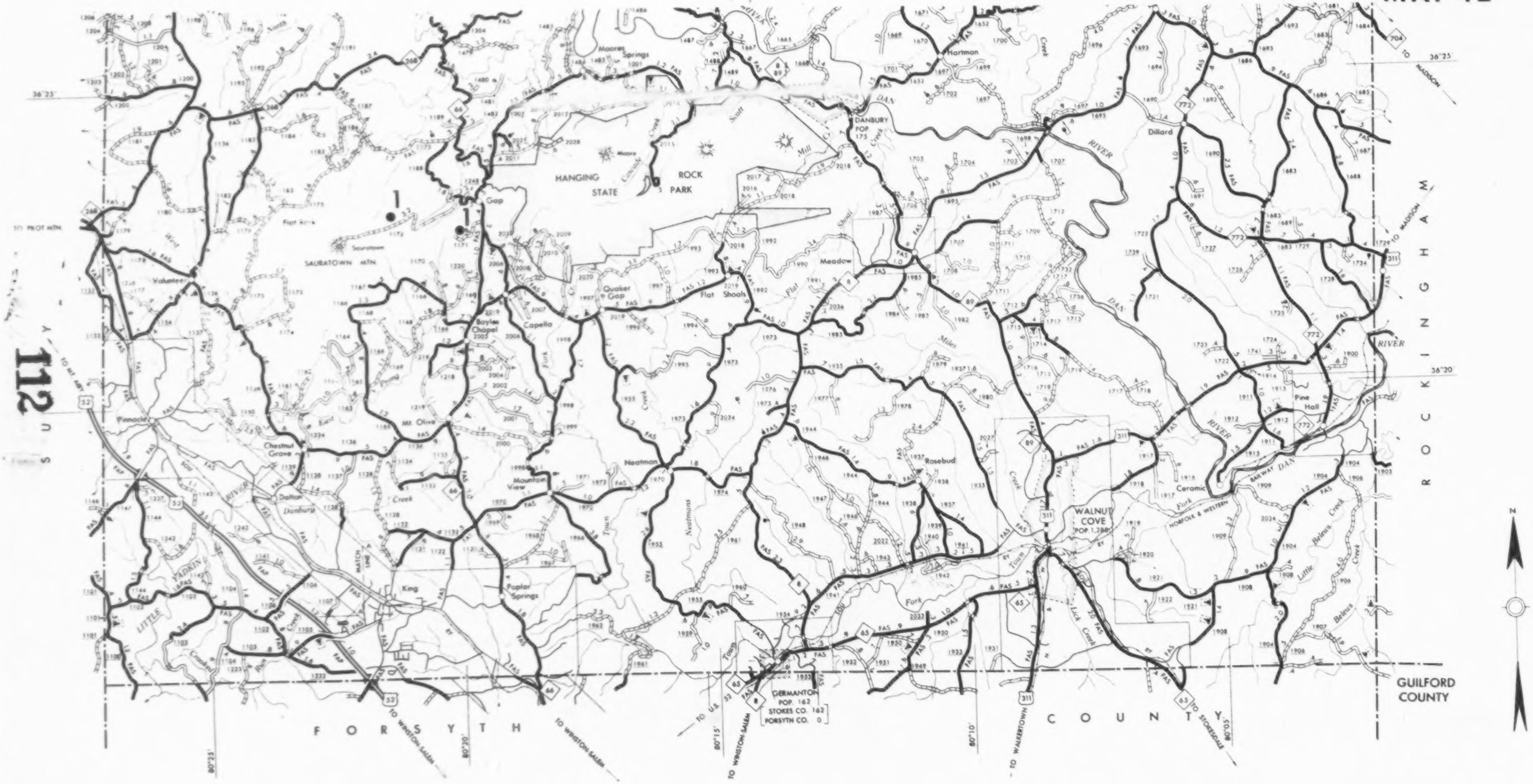
ITACOLUMITE (Flexible Sandstone)

Stokes County

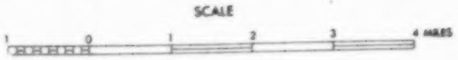
PHOTOGRAPH BY S.W. Buchanan

COURTESY STATE MUSEUM, RALEIGH

MAP 42

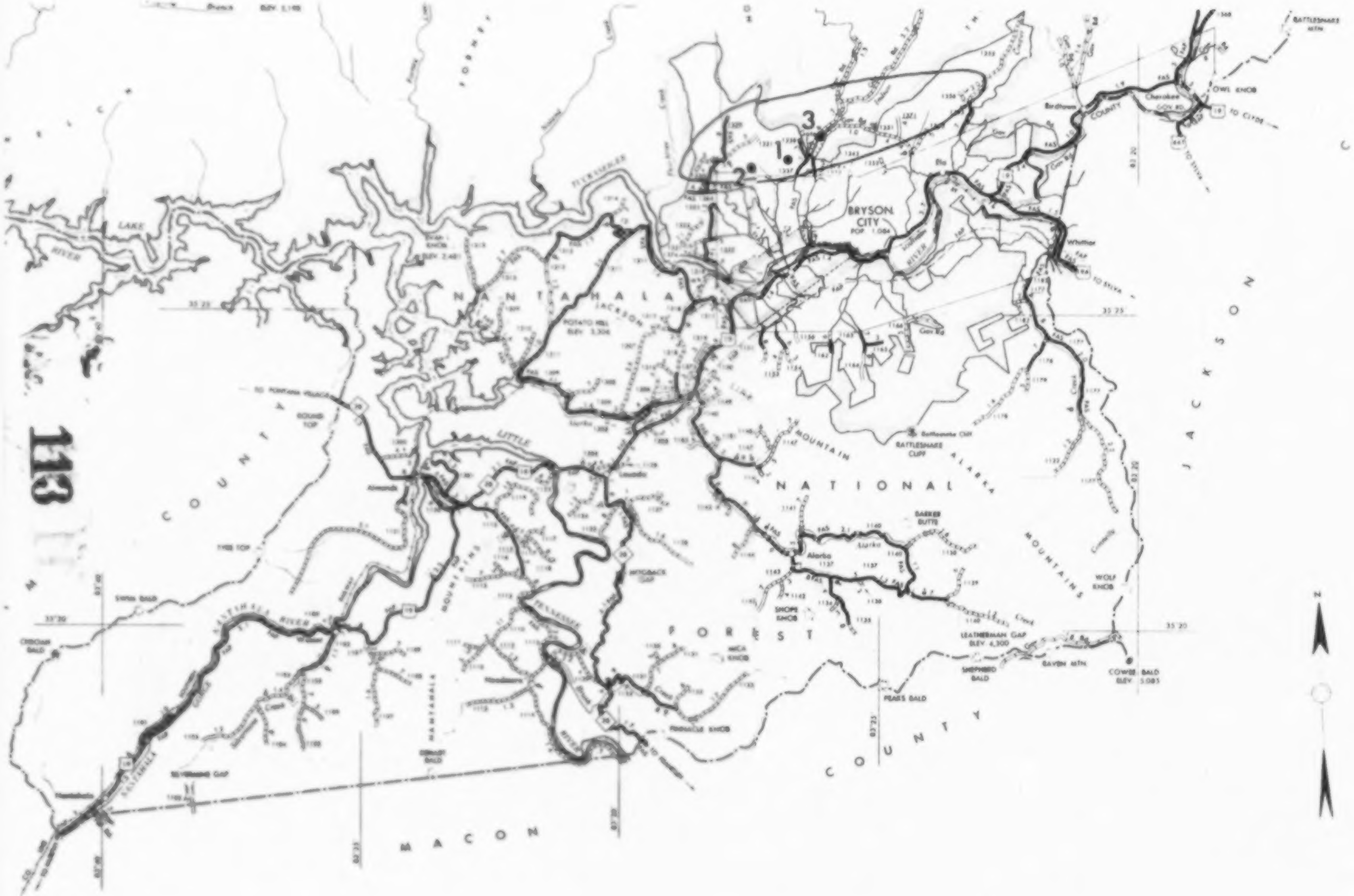

HANGING ROCK STATE PARK
SAURATOWN MTN.
DANBURY POP. 173
WALNUT COVE POP. 1,288
GERMANTON POP. 162 STOKES CO. 162 FORSYTH CO. 0
King
Pinnacle
Volunteer
Chestnut Grove
Dalton
Mt. Olive
Baylee Chapel
Capella
Mountain View
Poplar Springs
Quaker Gap
Flat Shoals
Meadow
Neatman
Rosebud
Moores Springs
Hartman
Dillard
Pine Hall
Ceramic
Gap
DAN RIVER
YADKIN RIVER
ROCKINGHAM
FORSYTH COUNTY
GUILFORD COUNTY
TO MADISON
TO WALKERTOWN
TO STOKESDALE
TO WINSTON-SALEM
TO MT. AIRY
TO PILOT MTN.
36°25'
36°20'
80°25'
80°20'
80°15'
80°10'
80°05'
N

STOKES COUNTY


SCALE
1
0
1
2
3
4 MILES

LEGEND

1. Itacolumite


BRYSON CITY
NANTAHALA
NATIONAL
FOREST
ALARKA
MOUNTAINS
JACKSON COUNTY
MACON COUNTY
LITTLE TENNESSEE RIVER
BATTLESHAKE CLIFF
LEATHERMAN GAP
COWEE BALD
WOLF KNOB
POTATO HILL
Whittier
Cherokee
OWL KNOB
N

MAP 43

SWAIN COUNTY

SCALE

LEGEND

1. Pegmatite minerals (Carson mines)
2. Pegmatite minerals (Cox No.1 mine)
3. Kyanite

biotite and muscovite mica, quartz, feldspar, pyrite and thulite (Cameron, 1951, p. 51).

The Cox No. 1 mine, located north of the Toot Hollow Branch (see Map 43, locality 2), was mined for *feldspar*. It also contains *garnet, biotite, pryite, allanite, samarskite and magnetite* (Cameron, 1951, p. 82).

Kyanite: *Kyanite and staurolite* are found in a graphite schist on the hillside north of the Deep Creek camp site 1.5 miles north of Bryson City (see Map 43, locality 3).

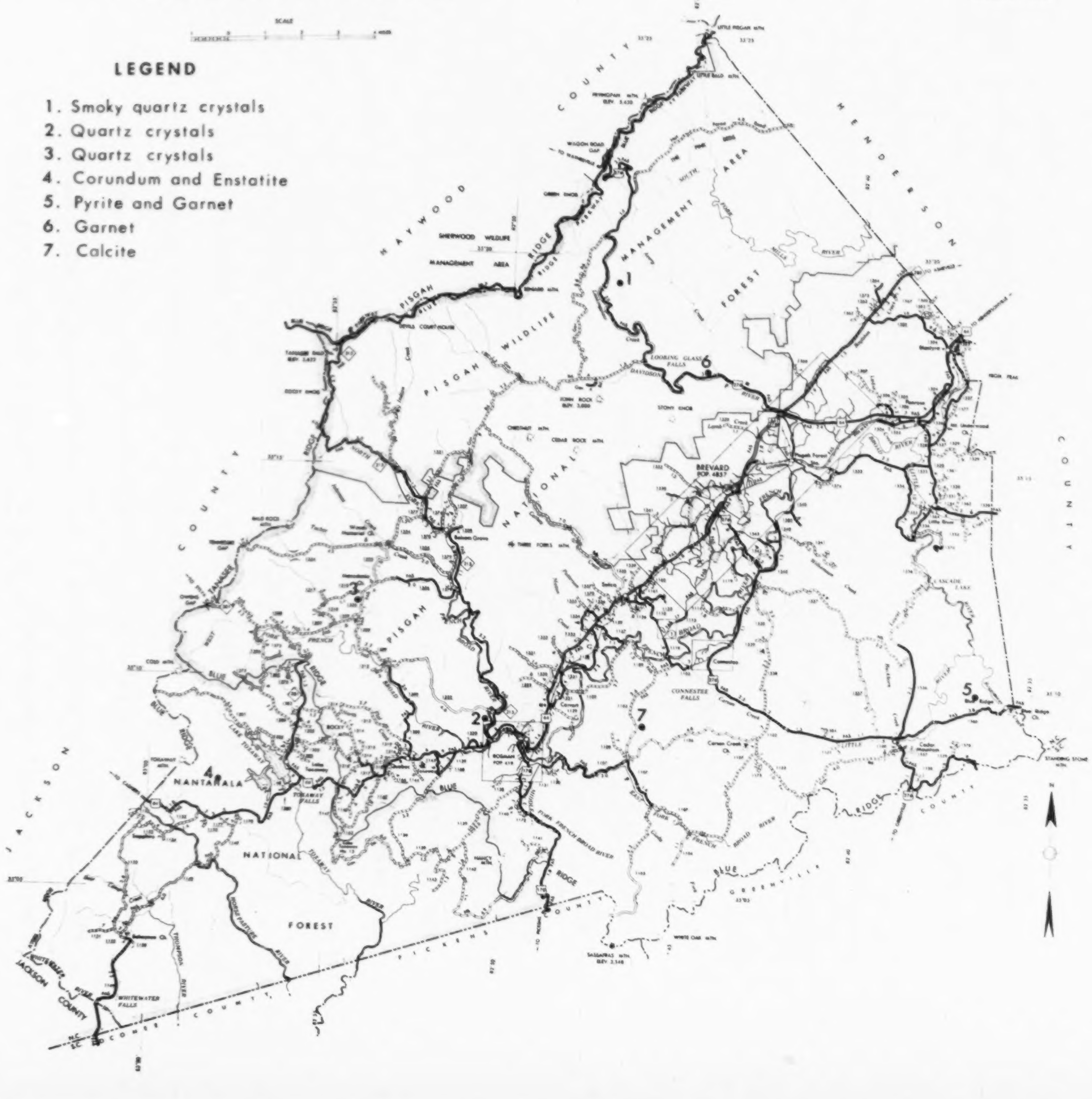
Transylvania County

Quartz: *Smoky quartz* crystals have been found east of highway U.S. 276, above the Pink Beds recreation area, north of Looking-Glass Falls. The area can be reached from the recreation area by following the Carolina Power and Light Company high-tension line up the mountain for approximately one mile. The *smoky quartz* occurs in a vein which crosses a sharp bend of a now-abandoned road (Mr. D.C. Dills, Brevard, North Carolina, Personal Communication) (see Map 44, locality 1).

Quartz crystals occur northwest of Rosman. This area can be reached by taking the Balsam Grove Road, N.C. 215, north of Rosman for 0.9 mile and turning west onto SR 1322 which crosses the North Fork of the French Broad River. The *quartz* crystals occur on the south side of the road 0.2 mile west of the river, past a saw mill and down a hill towards a small stream which is a tributary to the North Fork of the French Broad River (see Map 44, locality 2).

TRANSYLVANIA COUNTY

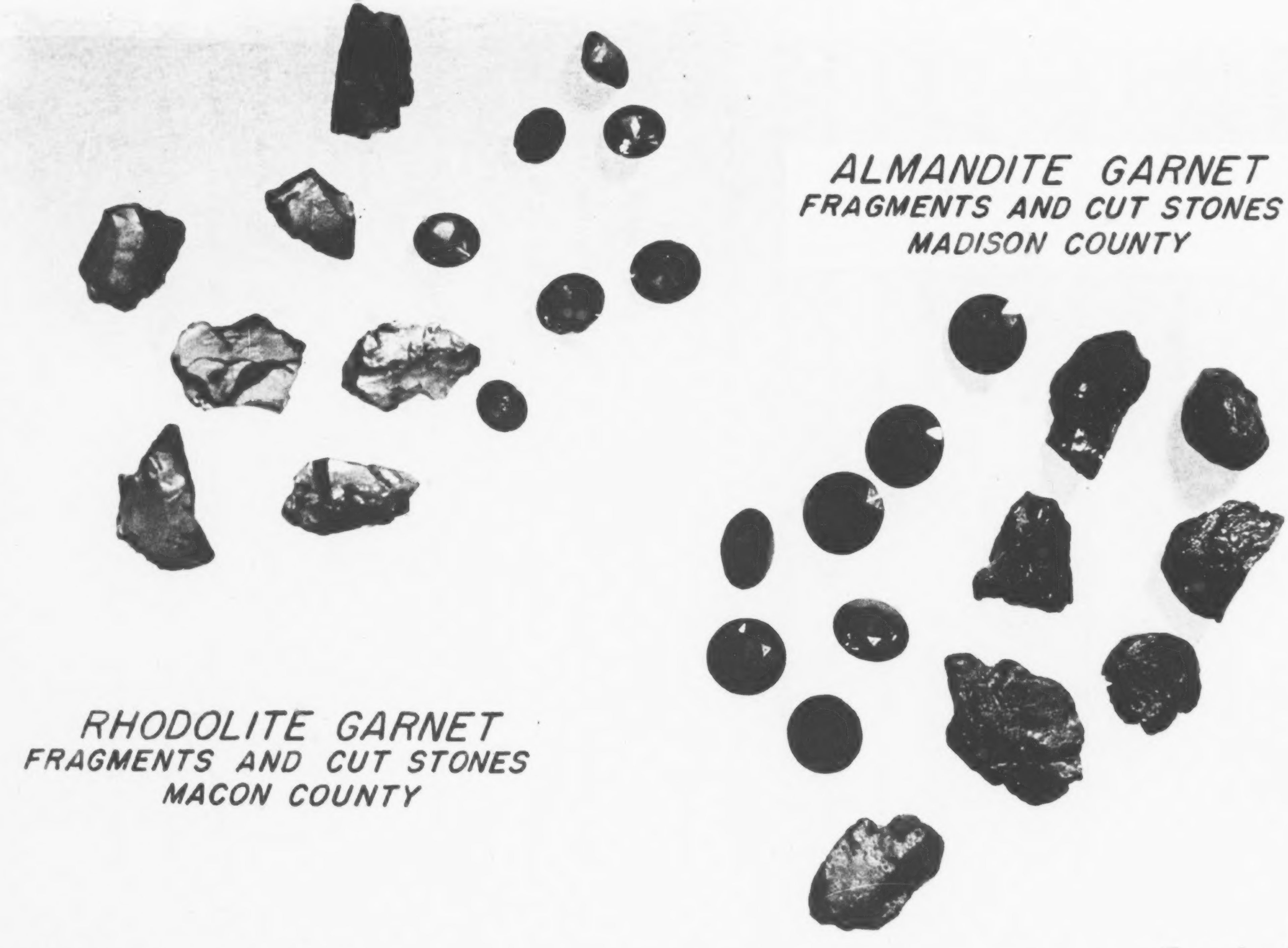
MAP 44


SCALE
BUNCOMBE COUNTY
HENDERSON COUNTY
HAYWOOD COUNTY
JACKSON COUNTY
PICKENS COUNTY
OCONEE COUNTY
GREENVILLE COUNTY
PISGAH NATIONAL FOREST
PISGAH WILDLIFE MANAGEMENT AREA
SHERWOOD WILDLIFE MANAGEMENT AREA
NANTAHALA NATIONAL FOREST
BLUE RIDGE
BREVARD POP. 4857
ROSMAN
LOOKING GLASS FALLS
CONNESTEE FALLS
WHITEWATER FALLS
TOXAWAY FALLS
THOMPSON RIVER
HORSEPASTURE RIVER
FRENCH BROAD RIVER
DAVIDSON RIVER
STANDING STONE MTN.
SASSAFRAS MTN. ELEV. 3,548
WHITE OAK MTN.
CEDAR ROCK MTN.
STONY KNOB
THREE FORKS MTN.
LITTLE PISGAH MTN.
1
2
3
4
5
6
7
N

LEGEND

1. Smoky quartz crystals
2. Quartz crystals
3. Quartz crystals
4. Corundum and Enstatite
5. Pyrite and Garnet
6. Garnet
7. Calcite

PLATE NO. 9



ALMANDITE GARNET
FRAGMENTS AND CUT STONES
MADISON COUNTY

RHODOLITE GARNET
FRAGMENTS AND CUT STONES
MACON COUNTY

COURTESY STATE MUSEUM, RALEIGH

PHOTOGRAPH BY S.W. Buchanan

Double-terminated *quartz* crystals occur as float in a pasture on Raymond Hogsed property (Mr. D.C. Dills, Brevard, North Carolina, Personal Communication) on the west side of SR 1326, 2.2 miles west-southwest of Balsam Grove (see Map 44, locality 3).

Corundum and Enstatite: *Corundum and enstatite* occur in dunite which crops out on the east slopes of the Great Hogback Mountain north of Oakland (see Map 44, locality 4).

Pyrite and Garnet: *Pyrite and garnet* can be found in float along the Carolina Power and Light Company line, north of SR 1560 between the villages of Cedar Mountain and Blue Ridge (see Map 44, locality 5). *Garnet* can also be found 2.3 miles southeast of Looking Glass Falls on the north bank of highway U.S. 276 in a grove of black pines (Mr. D.C. Dills, Brevard, North Carolina, Personal Communication) (see Map 44, locality 6).

Calcite: Dog-tooth *calcite* crystals occur north of the Girl Scout Camp east of Rosman near the farm of Mr. Porter Tinsley (see Map 44, locality 7). The locality is reached by taking N.C. 178 south out of Rosman for 1.0 mile then turning east on SR 1107 for 3.0 miles to the intersection of SR 1107 and 1103. Continue 1.1 miles north on SR 1103.

Vance County

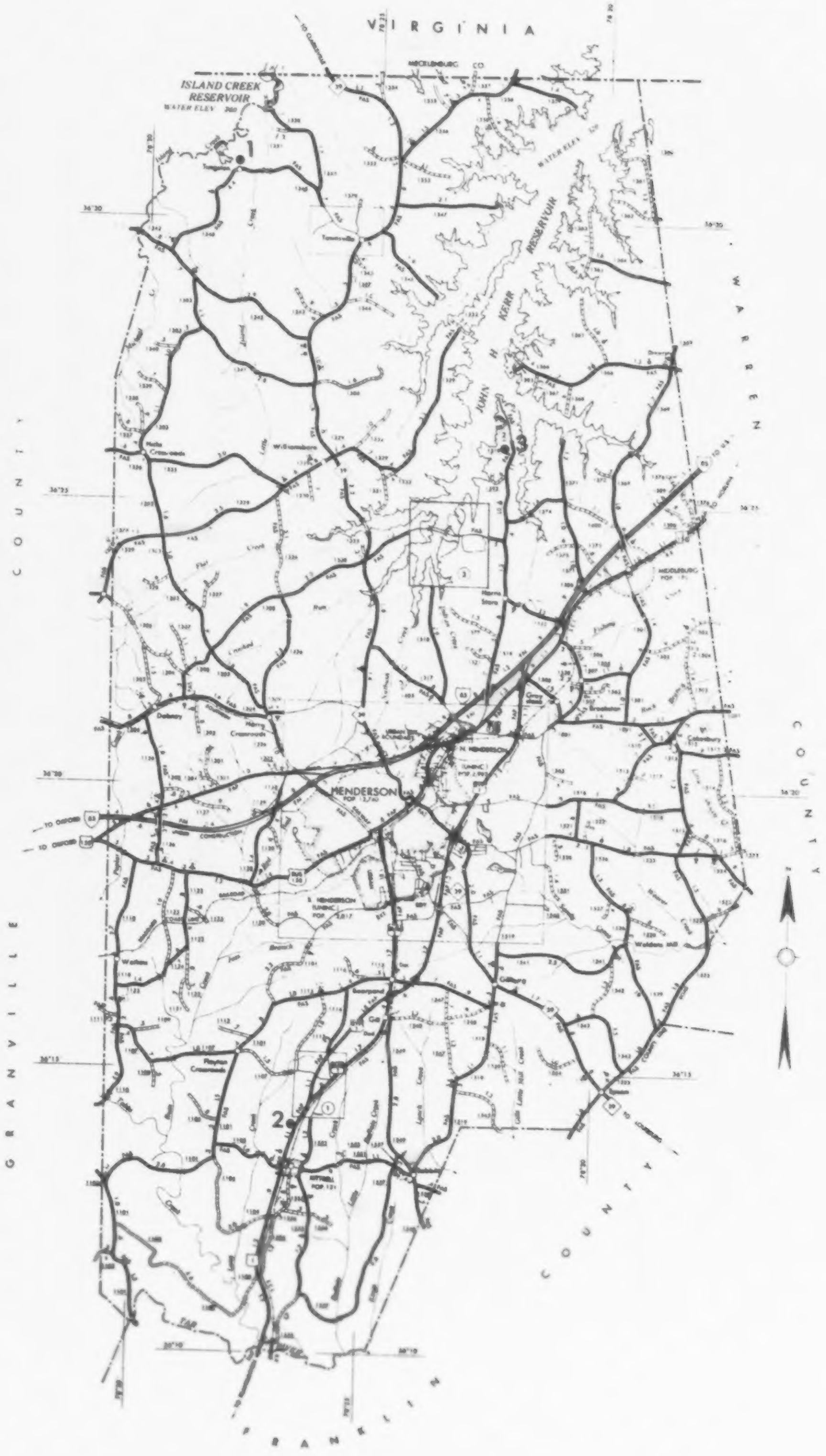
Minerals of the Hamme-Tungsten District: The Hamme-Tungsten district is located in the northeast part of the county, in the area lying between Big Island Creek and Little Island Creek (see Map 45, locality 1). The tungsten ores occur in vein deposits. The chief ore

MAP 45

VANCE COUNTY

LEGEND

1. Tungsten minerals
2. Hyalite
3. Rutile and Sillimanite


VIRGINIA
ISLAND CREEK RESERVOIR
JOHN H. KERR RESERVOIR
WARREN COUNTY
GRANVILLE COUNTY
FRANKLIN COUNTY
HENDERSON
1
2
3

is *huebnerite* but the veins also carry the minerals *scheelite*, *pyrite*, *rhodochrosite*, *sphalerite*, *tetrahedrite*, *chalcopyrite*, *galena*, *apatite*, *fluorite and sericite* (White, 1945, pp. 97-110). The Hamme mine at Tungsten, North Carolina, was closed in 1962, but has recently been reopened by Ranchers Exploration and Development Company. The following minerals, in addition to those above, may be found at this mine: *siderite*, blue *quartz*, *limonite* and under the old water tower, *magnetite*, *scheelite and powellite*.

Hyalite: *Hyalite opal* occurs as crusts covering granitic gneiss on the banks of the new U.S. 1 bypass, approximately one mile north of Kittrell (see Map 45, locality 2). The *hyalite* is not easily detected except when exposed to ultraviolet light, under which it fluoresces a brilliant green color.

Rutile and Sillimanite: *Rutile and sillimanite* occur in phyllite gneiss northeast of Henderson. This area can be reached by taking highway U.S. 158 north from Henderson to its intersection with SR 1319 which turns north and should be followed for 4.8 miles to the locality. The locality lies west of the road, between the road and the Kerr Reservoir (see Map 45, locality 3).

Wake County

Soapstone and Actinolite: Several soapstone bodies carrying actinolite occur near Bayleaf in Wake County. These deposits are located on SR 1834 west of Bayleaf where Barton's Creek crosses the road (see Map 46, locality 1), at the crossroads north of Bayleaf, in the large meander of the Neuse River northeast of Bayleaf, and where

Buckhorn Creek enters Newlight Creek northeast of Bayleaf. Small *corundum* crystals have been found on the Powell Place, between Newlight Creek and Water Fork, east of Purnell (Mr. Harry T. Davis, State Museum, Raleigh, Personal Communication). It is also reported to occur 1.9 miles northwest of Bayleaf (see Map 46, locality 2).

Beryl and Allanite: *Beryl and allanite* are reported to occur in pegmatite on the Thompson farm 2.5 miles south of Purnell, between Horse Creek and SR 1923 which intersects highway N.C. 98 (see Map 46, locality 3).

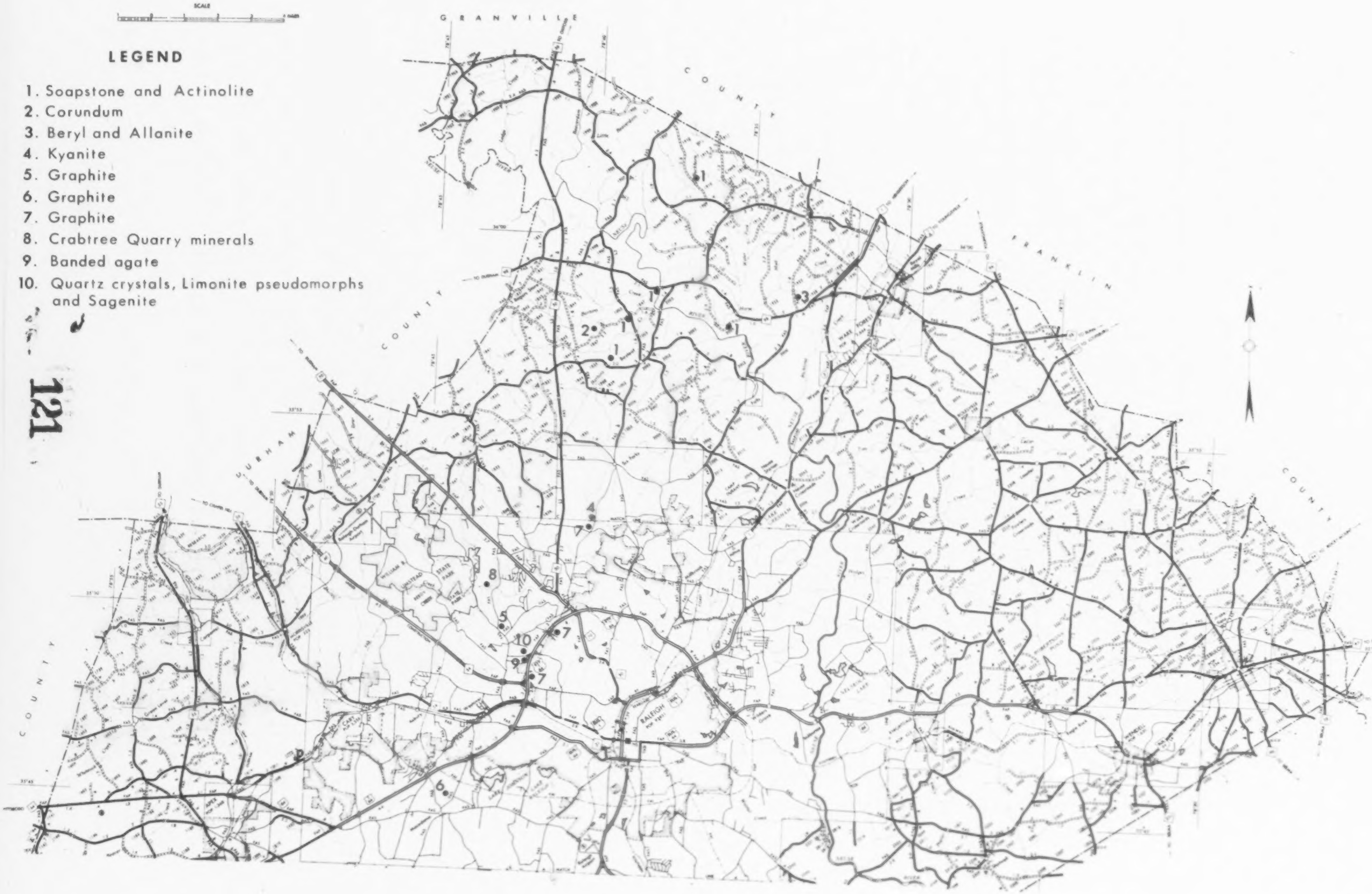
Kyanite: *Kyanite* occurs in a road cut north of Raleigh on Mine Creek (see Map 46, locality 4). This area can be reached by taking SR 1820 which turns north off highway U.S. 70 west, just west of Crabtree Creek bridge. The *kyanite* lies 3.6 miles up this road.

Graphite: One, and in places, two bands of *graphite* cross central Wake County, west of Raleigh. One of these bands starts near Macedonia and extends northward, crossing highway U.S. No. 1 near Meredith College (see Map 46, localities 5 and 6). Another band is encountered near the State Fairgrounds and is traceable northward almost to Six Forks. This vein has been mined for *graphite*, off highway U.S. 70, northwest of Raleigh, in the vicinity of Mine Creek (see Map 46, locality 7).

Kobellite, Pyrite, Chalcopyrite, Jamesonite, Smoky Quartz Crystals, Aikinite, Green Siderite and Magnesite: These rare minerals and others occur in fractures and joints in the Nello Teer Crabtree Creek Quarry northwest of Raleigh (see Map 46, locality 8). The quarry has produced many cabinet specimens of *kobellite*, *jamesonite*, green

WAKE COUNTY

MAP 46


SCALE
GRANVILLE COUNTY
FRANKLIN
COUNTY
NASH COUNTY
DURHAM
COUNTY
WAKE FOREST
RALEIGH
1
2
3
4
5
6
7
8
9
10

LEGEND

1. Soapstone and Actinolite
2. Corundum
3. Beryl and Allanite
4. Kyanite
5. Graphite
6. Graphite
7. Graphite
8. Crabtree Quarry minerals
9. Banded agate
10. Quartz crystals, Limonite pseudomorphs and Sagenite

siderite, coated *magnesite* crystals, *calcite*, *muscovite* crystals, *smoky and milky quartz* crystals, *hornblende and tetrahedrite*. The writers found one piece of *chalcopyrite* weighing over 100 pounds.

Banded Agate: *Agate* occurs as float and in the creek that passes between new N.C. 54 and Lake Boone Trail and also in the creek in front of the Palms Apartments, east and west of the Raleigh "Beltline" and south of Lake Boone Trail (see Map 46, locality 9).

Quartz Crystals, Limonite Pseudomorphs and Sagenite: These minerals occur in the borrow pit behind the Phillips' 66 Station on Lake Boone Trail at its intersection with the Raleigh "Beltline ," (see Map 46, locality 10).

Warren County

Beryl, Lepidolite, Smoky Quartz and Amethyst: *Beryl, lepidolite, smoky quartz and amethyst* occur approximately 2.5 miles southeast of Inez on the property of Martin Fowler. The Fowler residence is located west of SR 1629, 0.2 mile south of the intersection of SR 1629 and SR 1640 (see Map 47, locality 1).

Watauga County

Copper: The locality within a radius of three miles of Elk Knob, eight miles north of Boone has been worked for copper (see Map 48, locality 1). The main copper ores mined in this area are *chalcopyrite, azurite and malachite* accompanied by *pyrite*.

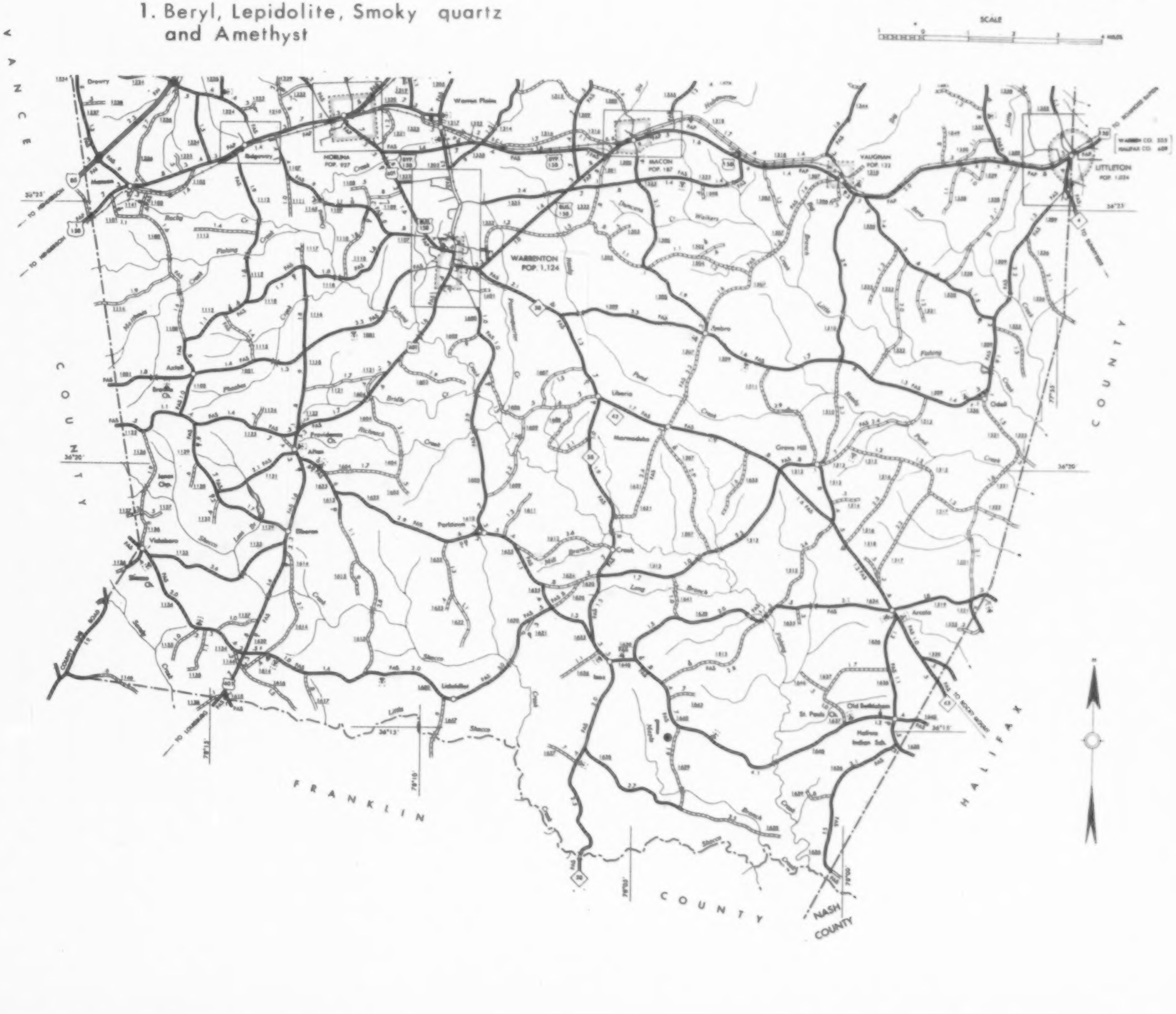
Calcite: *Calcite* occurs in several quartz veins which cross

MAP 47

WARREN COUNTY

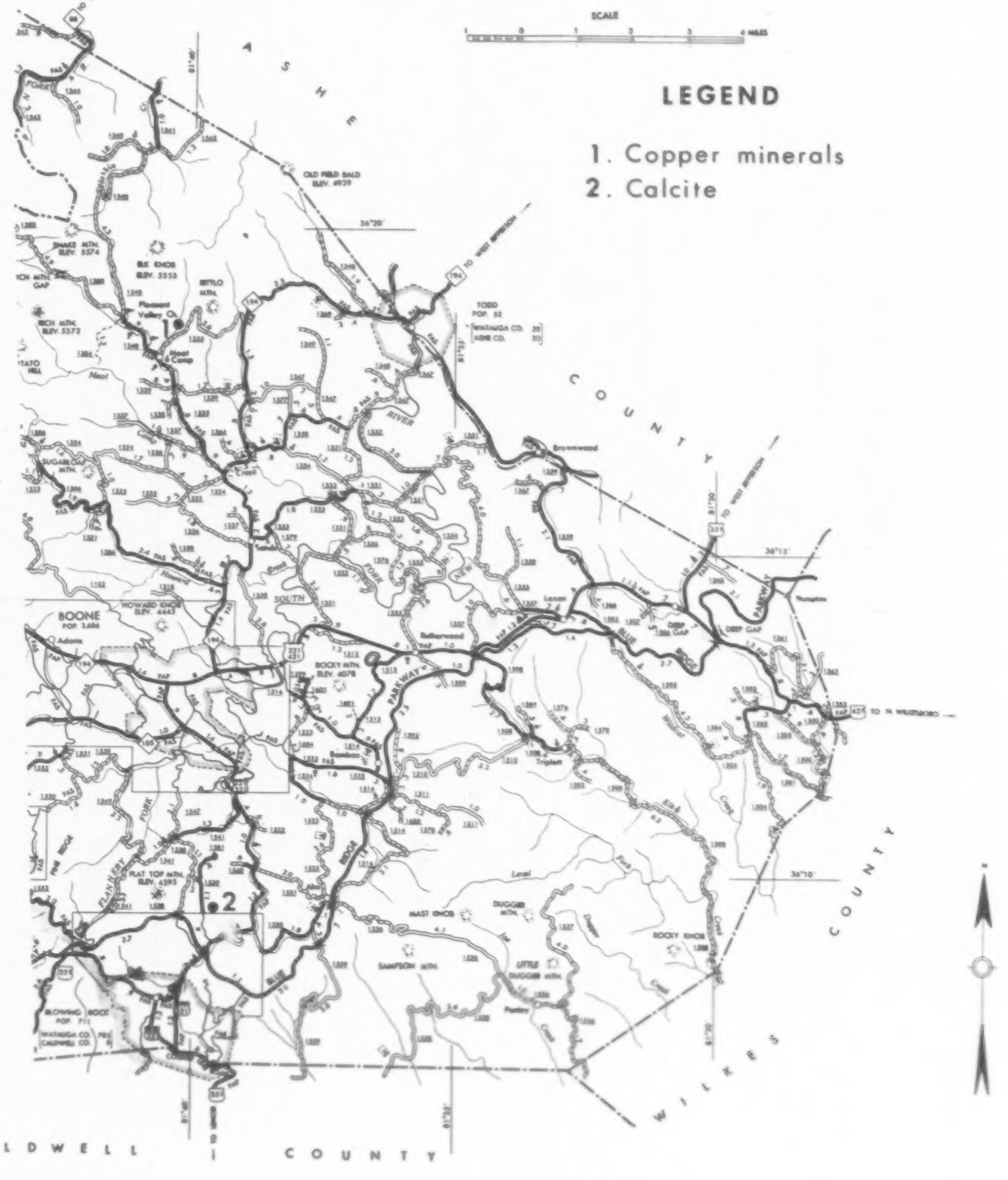
LEGEND

1. Beryl, Lepidolite, Smoky quartz and Amethyst


SCALE
MILES
VANCE COUNTY
FRANKLIN COUNTY
NASH COUNTY
HALIFAX COUNTY
WARRENTON POP. 1,124
LITTLETON POP. 1,024
MACON POP. 187
VAUGHAN POP. 122
NORLINA POP. 927
Warren Plains
Ridgeway
Manson
Drewry
Afton
Embro
Liberia
Grove Hill
Arcola
Odell
Inez
Vicksboro
Areola
Paschall
Macon
Littleton
Hollister
Old Bethlehem
Haliwa Indian Sch.
St. Paul's Ch.
Fishing Creek
Shocco Creek
Walkers Creek
Little Fishing Creek
Hubquarter Creek
Sandy Creek
Long Branch
Mill Branch
36°25'
36°20'
36°15'
78°15'
78°10'
78°05'
77°55'

MAP 48

WATAUGA COUNTY


SCALE
LEGEND
1. Copper minerals
2. Calcite
ASHE COUNTY
WILKES COUNTY
CALDWELL COUNTY
BOONE
BLOWING ROCK
TODD
OLD FIELD BALD ELEV. 4939
HOWARD KNOB ELEV. 4443
ROCKY KNOB
SAMPSON MTN.
MAST KNOB
Brownwood
Deep Gap
36°20'
36°15'
36°10'

secondary roads between Boone and Blowing Rock (see Map 48, locality 2). The best locality is on SR 1539 leading to the Appalachian Ski Mountain from U.S. 221. This *calcite* fluoresces under ultraviolet light.

Wilkes County

Pyrrhotite, Pyrite and Chalcopyrite: An area near Trap Hill in the northeastern part of the county, on the east side of Bryan's Knob contains quartz veins carrying *pyrrhotite, pyrite and chalcopyrite* (Kerr and Hanna, 1887, p. 231).

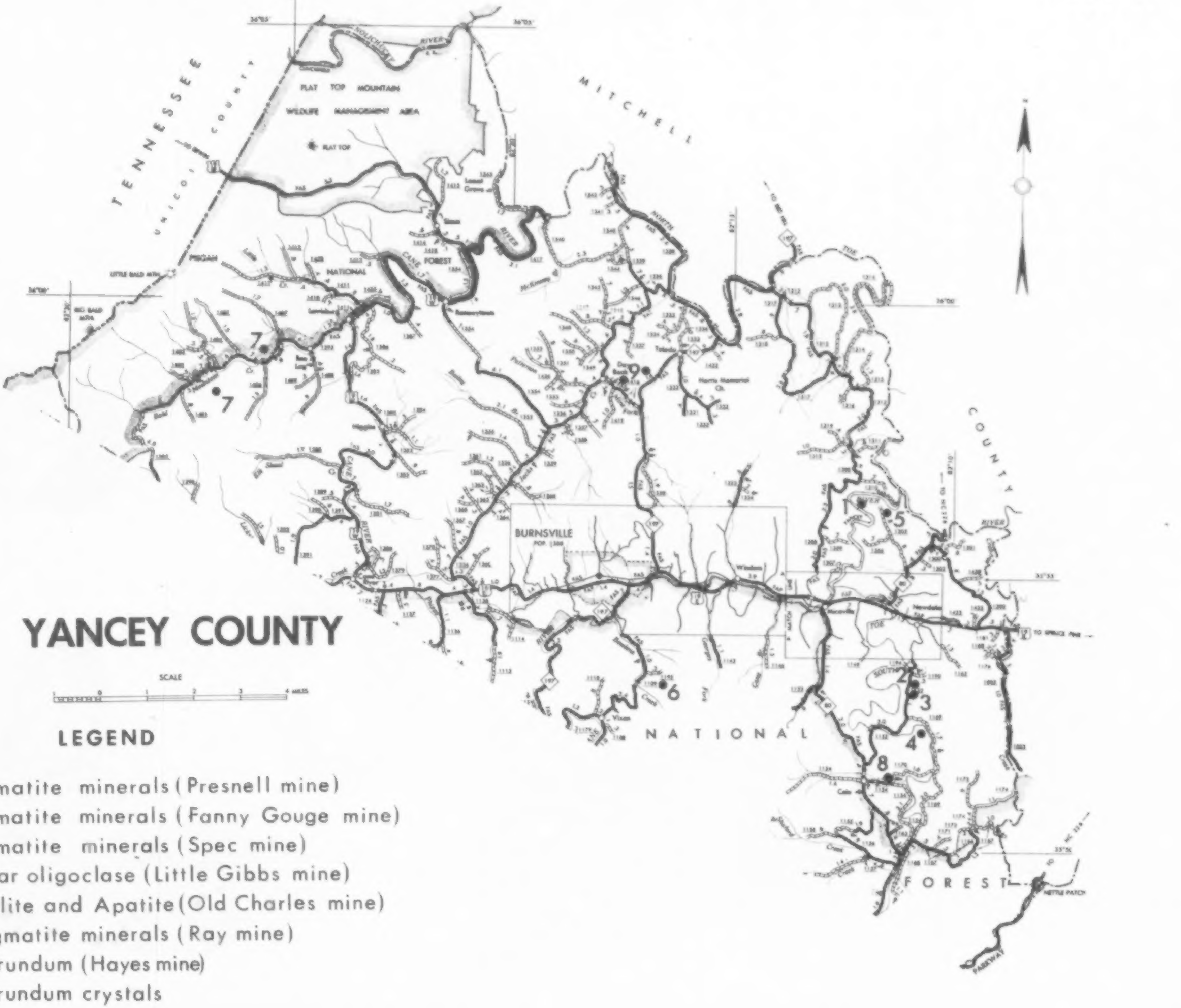
Galena : *Argentiferous galena* occurs in veins on the Laurel Spur of Flint Knob. This area is located in the western part of the county, six miles east of Deep Gap (Kerr and Hanna, 1887, p. 202).

Sillimanite: *Sillimanite* occurs in road cuts on N.C. Highway 16 on the north side of Brush Mountain in Wilkes County.

Yancey County

Pegmatite Minerals : The Spruce Pine Pegmatite District crosses eastern Yancey County east of Burnsville. Some of the many mines of this district which lie within the boundary of Yancey County are the Presnell mine, the Old Charles mine and the Ray mine. The Presnell mine, located on the Toe River, two miles north of Micaville (see Map 49, locality 1) contains the minerals *quartz, mica* in crystals, *feldspar, almandite, apatite and columbite*. The Fanny Gouge mine, located

MAP 49

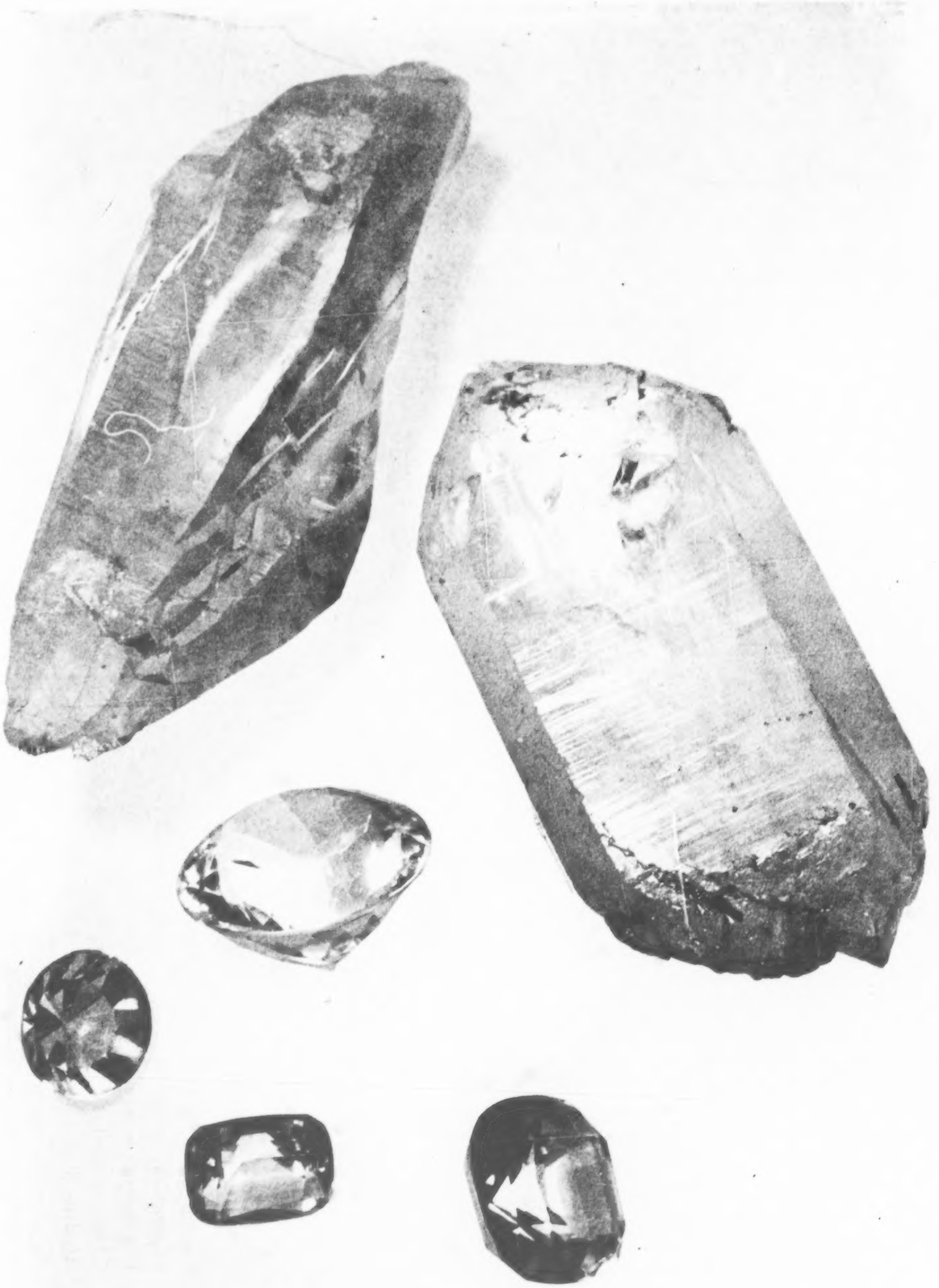

TENNESSEE
UNICOI COUNTY
MITCHELL
COUNTY
FLAT TOP MOUNTAIN
WILDLIFE MANAGEMENT AREA
FLAT TOP
NOLICHUCKY RIVER
PISGAH NATIONAL FOREST
CANE RIVER
NORTH TOE RIVER
SOUTH TOE RIVER
BURNSVILLE
NATIONAL
FOREST
LITTLE BALD MTN.
BIG BALD MTN.
TO SPRUCE PINE
NETTLE PATCH
PARKWAY
SCALE
0 1 2 3 4 MILES
1
2
3
4
5
6
7
8
9

YANCEY COUNTY

LEGEND

1. Pegmatite minerals (Presnell mine)
2. Pegmatite minerals (Fanny Gouge mine)
3. Pegmatite minerals (Spec mine)
4. Clear oligoclase (Little Gibbs mine)
5. Thulite and Apatite (Old Charles mine)
6. Pegmatite minerals (Ray mine)
7. Corundum (Hayes mine)
8. Corundum crystals
9. Dunite minerals

PLATE NO. 10



QUARTZ CRYSTALS AND CUT STONES

PHOTOGRAPH BY J.W. Buchanan

COURTESY STATE MUSEUM, RALEIGH

2.5 miles southeast of Micaville (see Map 49, locality 2) contains the minerals *quartz, mica, feldspar, thulite, pitchblende and uranium* alteration minerals. The Spec mine, which lies on a mountain ridge several hundred yards south of the Fanny Gouge mine (see Map 49, locality 3) contains in addition to *quartz, mica and feldspar*, the minerals *almandite and aquamarine beryl*. The Little Gibbs mine on the South Toe River 1.5 miles northeast of Celo (see Map 49, locality 4) contains a glass-clear *oligoclase feldspar* which can be cut into faceted gem stones (Mr. Floyd Wilson, Micaville, Personal Communication). The Old Charles mine which lies 2.4 miles northeast of Micaville (see Map 49, locality 5) contains *thulite* and blue *apatite* crystals. The Ray mica mine on Hurricane Mountain, 3.8 miles south-southeast of Burnsville (see Map 49, locality 6) contains *golden and aquamarine beryl, apatite* crystals, clear *oligoclase, amazonstone and thulite*. Genth and Kerr (1885,p. 127)stated that "the minerals flourite in pseudomorphs after apatite, yttrocerite, garnet, zircon, rutile, tourmaline, columbite, monazite, autunite, kyanite and smoky quartz were found at this mine."

Corundum: Corundum has been mined at the Hayes (Egypt) mine on the western slopes of Sampson Mountain, nine miles northwest of Burnsville (see Map 49, locality 7). The *corundum* at this locality varies from white to mottled blue in color and usually is found as well-formed crystals. *Corundum* crystals are sometimes found in a weathered gneiss on Celo Ridge, near the South Toe River, east of the village of Celo (see Map 49, locality 8) (Pratt and Lewis, 1905, p. 259).

Olivine, Anthophyllite, Tremolite, Vermiculite, Chromite, Garnierite and Bronzite: These minerals occur in the area around Day Book, 4.4 miles north of Burnsville. The mine is located directly beside the road and permission should be secured before entering (see Map 49, locality 9).

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APPENDIX

MINERALS OF NORTH CAROLINA

The minerals known to be found in North Carolina are listed alphabetically in the following catalogue. Out of more than 300 minerals there are 70 that have at present a definite economic value. More than half of the valuable minerals are known to occur in commercial quantities.

Actinolite
Aeschynite
Aikinite
Albite
Allanite
Alleghanyite
Almandite
Altaite
Alunite
Alunogen
Amber
Amblygonite
Amianthus
Amphibole*
Anatase
Andalusite
Andesine
Andradite
Anglesite
Annabergite
Annerodite
Anorthite
Anthophyllite
Antimony*
Apatite
Aquamarine
Aragonite
Arfvedsonite
Argentite
Arsenopyrite
Asbestos
Asbolite
Auerlite**
Augite
Automolite
Autunite
Azurite

Baltimorite
Barnhardtite**
Barite
Basanite
Bastite
Bauxite
Bavenite
Bemenite
Bertrandite
Beryl
Bikitaite
Biotite
Bismite
Bismuthinite
Bismutite
Bityite
Bornite
Boulangerite
Braunite
Breunnerite
Bronzite
Brookite

Calamine
Calcite
Cassiterite
Cerargyrite
Cerolite
Cerussite
Chabazite
Chalcanthite
Chalcocite
Chalcopyrite
Chalcotrichite
Chlorite
Chloritoid
Chromite
Chrysocolla
Chrysolite
Chrysotile
Chrysoprase
Clarkeite
Clinochlore
Cocolite
Columbite
Columite
Cookeite
Copper
Cordierite
Corundolphillite
Corundum
Covellite
Chrocidolite
Crocoite
Culsageeite**
Cummingtonite
Cuprite
Cuproscheelite
Cuprotungstite
Cryolite

Damourite
Deweylite
Diamond
Diallage
Diadochite
Diaspore
Dichroite
Diopside
Disthene (Kyanite)
Dolomite
Dravite
Dudleyite
Dufrenite
Dumortierite

Eakerite
Edenite
Edwardsite
Emerald
Emery
Enstatite
Eosphorite
Epidote
Erinite
Essonite
Euclase
Euxenite

Fairfieldite
Feldspar*
Fergusonite
Ferrimolybdite
Fibergite
Fluorite
Fuchsite

Gadolinite
Gahnite
Galaxite
Galena
Garnet*
Garnierite
Gedrite
Genthite
Glauconite
Gold
Goslarite
Gramatite
Graphite
Grossularite
Grunerite
Gummite
Gymmite
Gymnite
Gypsum

Halite
Halloysite
Halotrichite
Hatchettolite**
Hausmannite
Hematite
Hercynite
Hiddenite**
Holmquistite
Hornblende
Hielmite
Huebnerite
Hydrofergusonite
Hydrozincite
Hypersthene

Ilmenite
Indianite
Iolite
Iron

Jamesonite
Jasper
Jasperoid
Jefferisite

Kanmererite
Kaolinite
Kerrite**
Knebelite
Kobellite
Kokscharoffite
Kreittonite
Kunzite
Kyanite

Labradorite
Laueite
Lazulite
Lead
Lepidolite
Leucopyrite
Liebigite
Limonite
Lithiophillite
Lucasite**

Maconite
Magnesite
Magnetite
Malachite
Malaconite
Marcasite
Margarite
Margarodite
Marmolite
Martite
Meershaum
Meionite
Melaconite
Mellanterite
Menacconite
Mengite
Mica*
Microlite
Mitchellite**
Mitridatite
Molybdenite
Molybdite
Monazite
Montanite
Montmorillonite
Muscovite

Nagyagite
Natrolite
Neomesselite
Neotocite
Niccolite
Niter

Octahedrite
Oligoclase
Olivenite
Olivine
Orthoclase
Orthite
Ottrelite

Paranthite
Paragonite
Pargasite
Pearl
Penninite
Peridot
Perovskite
Petalite
Pharmacosiderite
Phlogopite
Phosphocerite
Phosphuranylite**
Picotite
Picrolite
Pitchblende
Plagioclase**
Platinum
Pleonaste
Polycrase
Powellite
Prehnite
Prochlorite
Proustite
Pseudomalachite
Psilomelane
Purpurite
Pycnite
Pyrargyrite
Pyrite
Pyrochlore
Pyroclusite
Pyromelane
Pyromorphite
Pyrope
Pyrophyllite
Pyrrhotite
Pyroxene

Quartz
  - Agate
  - Amethyst
  - Carnelian
  - Calcedony
  - Chert
  - Druzy quartz
  - Flint
  - Hyalite
  - Jasper
  - Milky quartz
  - Opal

Rock crystals
Rose quartz
Smoky quartz
Sagenite quartz

Rensselaerite
Rhaetizite
Rhodochrosite
Rhodolite**
Rhodonite
Ripidolite
Rogersite**
Roscherite
Rubellite
Ruby
Ruby Spinel
Rutherfordite
Rutile

Samarskite
Saponite
Sapphire
Scheelite
Schreibersite
Scorodite
Sepiolite
Sericite
Serpentine
Siderite
Silver
Sillimanite
Smaragdite
Sperrylite
Spessartite
Sphalerite
Sphene
Spinel*
Spodumene
Staurolite
Steatite
Stibnite
Stilbite
Stolzite
Succinite
Sulphur
Switzerite

Talc
Tantalite
Tellurium
Tenorite
Tephroite
Tetradymite
Tetrahedrite
Tin
Thorite
Thulite
Topaz
Torbernite
Tourmaline
Tremolite
Troilite
Tungstite
Turnerite

Uralite
Uranite
Uraninite
Uraconite
Uranophane
Uranotile
Uvarovite

Vanadinite
Vermiculite*
Villarsite
Vivianite
Voglite

Wad*
Wavellite
Wellsite
Wickmenite
Willcoxite
Williamsite
Willemite

Xanthroxenite
Xenotime

Yttrocerite

Zinc
Zinnwaldite
Zippeite
Zircon
Zoisite

* Group names
** First identified in North Carolina

(Compiled by the Department of Conservation and Development and revised by the Author).

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